The Builder.

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An Analysis of the London Building Acts (Amendment) Act, 1905:

THE importance of this Act, which received the Royal Assent last August, is not to be measured by the number of its effective sections. When we come to deduct from the forty-three sections of the new Act those fifteen sections which deal with exemptions, the nine sections which have to do with definitions and other Acts and the ten sections concerned with machinery penalties and procedure, there are left but nine sections which directly affect buildings in the County of London. These nine sections, however, are so wide-reaching, and will probably involve so much structural alteration to existing buildings, besides having an important influence on the construction and arrangements of new buildings, that it behoves all who are interested in land and houses in London, even as occupiers only, to take note of the provisions of this Act, which comes into operation on January 1 next.

Generally speaking, we may say that the London County Council up to the passing of this Act has, except in special cases under the Metropolis Management Act, 1878, and the Factory and Workshop Act, 1901, exercised a very limited control over existing buildings (as distinguished from new buildings erected since January 1, 1895) in London. Now, for the first time, Parliament has sanctioned interference with existing buildings, and has conferred upon the London County Council powers with respect to the provision and maintenance of proper means of escape in case of fire from buildings, both new and old, in the administrative County of London. The necessity for legislation in this respect was clearly realised both by the authorities and the public at the time of the Queen Victoria-street fire, where ten lives were lost in broad daylight on June 9, 1902. We are not, however, at the moment concerned with the history of the various Bills which have been promoted, withdrawn, amended, re-introduced, partially dropped, and, as to a small part, finally added to the Statute Book after very considerable emendation and amendment. Our object, rather, is to call attention to the provisions of the new Act itself.

Provisions in Relation to Existing Buildings.

It will, perhaps, give an idea of the scope of the Act with regard to existing buildings if we point out what existing buildings are not affected under the Act.

There are five classes or groups of buildings the owners of which are exempt from any obligation whatsoever under the Act, viz.:—

A. Any existing dwelling-house occupied as such by not more than two families* (except in the case when such dwelling-house is used as a shop and has any part projecting 7 ft. or more beyond the main front, see below).

B. Every* existing building not exceeding 30 ft. in height and of two stories or less above the ground story (except where the building is used as a shop and has any part projecting 7 ft. or more beyond the main front, see below).

C. Any building, the whole of which is a factory or workshop within the meaning of sect. 14 of the Factory and Workshop Act, 1901.

D. Any part of a building used as a factory or workshop which has since August 11, 1902, been provided in that part with means of escape in case of fire, in accordance with the Factory and Workshop Act, 1901.

E. Any common lodging-house within the meaning of any Statute for the time being in force relating to common lodging-houses within London.

Except in special cases exempted under the Act, see sects. 28-42 (inclusive), there are only the above-named five classes of existing buildings which are outside the scope of the Act.

Of the existing buildings which fall within the scope of the Act, as regards some of these the provisions of the Act come into force on January 1, 1906, whilst as regards others the operation of the Act is postponed till January 1, 1907.

* In those cases where the dwelling-house is a "high building," or what has been called a twenty-person building, "one family" is the limit laid down instead of "two families" for the purpose of exemption.

* In those cases where the building (even though it be not more than 30 ft. high and of two stories only) is a twenty-person building, in order to be exempt it would have to be "a dwelling-house occupied as such by not more than one family."

Existing Buildings Affected on January 1, 1906.

Subject to the afore-mentioned exceptions, this group consists of four classes, viz. : —

I. Every existing building having more than two stories above the ground story.

II. Every existing building exceeding 30 ft. in height.

III. Projecting shops where projection exceeds 7 ft. (except what are called lock-up shops, *i.e.*, a shop not forming part of a building in which persons are employed or sleep).

IV. Living rooms over premises used for storage of inflammable liquid.

The above four classes will be more or less affected on January 1, 1906, but the requirements in regard to I. and II. will probably be found less costly than the requirements in regard to III. and IV.

The requirements with regard to I. and II. may be shortly stated as follows, viz.—Either (*a*) an accessible dormer* or door* opening on to the roof, or (*b*) a trap-door,* hinged and counter-weighted, covered with copper or zinc, and also a fixed or hinged step-ladder leading to the roof, or (*c*) other proper means of access to the roof, and, where practicable and necessary, a parapet or guard-rail. The likeness between the requisitions of this sect. 12 of the new Act and sub-sect. 2 (now repealed) of sect. 61 of the Act of 1894 is noticeable, but it will be remembered that the repealed sub-section of the Act of 1894 provided proper means of access to the roof of dwelling-houses or factories exceeding 30 ft. in height *and having a parapet*, so that by leaving out the parapet the requisition to provide access to the roof was avoidable. Under the new Act, however, access to the roof is, in certain cases, compulsory, and where necessary to prevent persons slipping off the roof a sufficient parapet or guard-rail is also exacted; obviously, as was wittily remarked by one of the counsel who appeared for the promoters of the Bill, "it would be no use inviting people out on the roof unless there be a parapet to meet them, for they would only be going out of the fire into the frying-pan."

With regard to shops projecting 7 ft. or more the requirement is—A roof over the projecting portion of the shop, which roof shall be "constructed of fire-resisting materials not less than 5 in. thick." This is in addition to the provision of the means of access (*a*), (*b*) or (*c*) to the roof of the main building.

The second sub-section of sect. 10 makes it lawful to have a lantern light or ventilating cowl in or upon the fire-resisting roof, provided certain rules as to position and construction of such light or ventilator be observed.

As regards requirements I., II., and III., there is a power given to the London County Council, or (in the event of an appeal) to the Tribunal of Appeal, to sanction entire or partial exemption "in any case where it is reasonable so to do."

IV. In the case of premises where inflammable liquid is kept for sale or trade purposes so as to be liable to cause fire or explosion two requirements are necessary for living rooms or work rooms over or communicating with such premises :—

(1.) Adequate safeguards for prevention of spread of fire. (2.) Means of ready escape from room in case of fire.

The above four classes of existing buildings will be affected on and after January 1 next. There remain now two classes of existing buildings in regard to which the operation of the Act will be deferred until January 1, 1907.

Existing Buildings Affected on January 1, 1907.

These are the following :—

V. Existing high buildings—*i.e.*, a building which has any story whose floor surface is more than 50 ft. above the footway.

VI. Existing twenty-person buildings —*i.e.*, a "building in which sleeping accommodation is provided for more than twenty persons or which is occupied by more than twenty persons, or in which more than twenty persons are employed."

It is to be noted that any existing dwelling-house occupied as such by not more than one family is excepted from the classes V. and VI.

In regard to these classes V. and VI., powers are given to the London County Council to require the owner to provide such means of escape therefrom in case of fire "as can be reasonably required under the circumstances of the case."

When the Bill was before Parliament there was a great deal of opposition to this clause, it being contended, among other things, by the opposers that the powers given to the London County Council were too wide; the promoters, on the other hand, submitted that the London County Council had exercised their similar powers, with regard to existing factories and workshops, in a reasonable manner. In the result Parliament has determined that the owner shall have a right of appeal to the Tribunal of Appeal in case he is advised that the requisitions of the Council are unreasonable or excessive. It is to be noted that, even though no structural alteration be made in a building, certain changes of user (*e.g.* the termination of an occupancy of a building by, say, nineteen persons, and the new occupancy of the building by, say, twenty-one persons) are deemed to be a conversion of a building, and notice of such conversion must be given by the "owner or occupier" to the District Surveyor.

It was pointed out in Parliament that the want of a definition of "one family" may lead to dispute and litigation. The promoters for their part did not appear to regard the definition as necessary, for, they submitted, there was no definition in the Act of 1894 of "two families," and yet sect. 69 of that Act has worked smoothly. It does appear to us, however, that the question promulgated by one of the counsel appearing for petitioners against the Bill seems to require an answer: "Are two bachelor friends living together to be deemed to be more than one family?"

The Provisions with regard to New Buildings.

The changes in regard to new buildings come into operation on January 1 next, and although, of course, these matters are of very great importance to owners, who have ultimately to pay—either by themselves or their tenants—for the improvements which are introduced into their buildings, yet the persons most immediately concerned are architects and surveyors, who are called upon to advise owners, and we shall, therefore, in what follows address ourselves more particularly to those professional men who may not as yet have made themselves acquainted with the new Act.

It will be remembered that by sect. 63 of the London Building Act, 1894, it was enacted that "every new building exceeding 60 ft. in height shall be provided on the stories, the upper surface of the floor whereof is above 60 ft. from the street level, with such means of escape in the case of fire for the persons dwelling or employed therein as can be reasonably required under the circumstances of the case, and no such stories of such building shall be occupied until the Council shall have issued a certificate that the provisions of this section have been complied with in relation thereto."

Now this sect. 63 of the Act of 1894 has been repealed, and it has been practically re-enacted (with important additions as to appeal to the Tribunal of Appeal) in sect. 9 of the new Act, but with "50 ft." substituted for the "60 ft." in the old Act. The reason for this lowering of the height was given in evidence before the Select Committee of the House of Commons in the form of a formula by Captain Hamilton, the chief officer of the London Fire Brigade, who, when under examination in regard to life-saving work by the use of fire-escape ladders, said, "It has been found that you can save life at 40 ft. perpendicular height slowly; at 50 ft. your can save it with great difficulty; above that height it becomes a sort of forlorn hope—you may succeed or you may not in saving one life."

The practical effect of the change of law is that when designing high buildings an architect is bound to contrive "proper and sufficient means of escape" from those upper stories where life can only be saved by fire-escape ladders "with great difficulty."

But it is not only new high buildings but also new twenty-person buildings which come under the provisions of sect. 9 of the new Act. It will be remembered that by sect. 14 of the Factory and Workshop Act, 1901, it was enacted that factories and workshops in which more than forty persons are employed must be provided "with such means of escape in case of fire for the persons employed therein as can reasonably be required under the circumstances of each case." Now, by the London Building Acts (Amendment) Act, 1905, forty-person factories are left to be dealt with under the Factory and Workshop Act, 1901, but the provisions of sect. 14 of the Act of 1901 are extended (with modifications as to appeal) to every new building "in which sleeping accommodation is provided for more than twenty persons,

* Position of dormer, door, or trap-door is to be approved by the District Surveyor, and the fastenings are to be such as will ensure ready access to the roof from inside the building.

or which is occupied or constructed or adapted to be occupied by more than twenty persons, or in which more than twenty persons are employed, or which is constructed or adapted for the employment therein of more than twenty persons." [See sect. 7 of the new Act.]

The only new building which, being also a high building or a twenty-person building, is excepted from sect. 7 of the new Act is "a dwelling-house occupied as such by not more than one family."

It will thus be evident to our readers that the practical effect of sect. 7 of the new Act is to require proper and sufficient means of escape to be provided not only from stories 60 ft. above pavement and from forty-person factories, but also from stories 50 ft. above pavement, from factories employing between twenty and forty persons, and from every other new twenty-person building.

It is, therefore, as we have seen, new high buildings and new twenty-person buildings which will be most affected by the new Act. New projecting shops are, however, affected in the same way as existing projecting shops (*vide supra*), whilst every new building, if having more than two stories above the ground story, or if exceeding 30 ft. in height, must be provided, "unless and except so far as the Council otherwise allow," with the means of access to roof which are indicated above. See I. and II. (*supra*) of existing buildings.

It may be a matter of interest to owners if we point out that the definition of "owner" in the case of a forty-person factory coming under the Factory and Workshop Act, 1901, differs from the definition given in the new Act, and that the difference arises from the fact that under the Factory and Workshop Act, 1901, which followed the Public Health Act, 1875, "rack-rent" is defined as two-thirds of the full *net* annual value, whereas in the new Act the word "net" is omitted from the definition of rack-rent, a distinction which may mean a considerable difference to those lessees upon whom the obligations of "owner" have not been transferred by deed, as is now frequently done. For example, after January 1, 1907, the case may conceivably arise where "the owner" upon whom is the obligation to provide means of escape would be a different person according as the factory in question employed forty-one persons or thirty-nine persons.*

Lastly, it may be noted that the whole of the second schedule relating to fire-resisting materials in the Act of 1894 is repealed, whilst the first schedule of the new Act contains an amended and extended list of materials which are to be "deemed to be fire-resisting materials."

We have thus endeavoured to put our readers generally in possession of the main features of the new Act. There is, however, one point to which we have on previous occasions drawn attention, viz., that we consider the owners, their advisers and the public are to be congratulated on the retention under the new Act of that Tribunal of Appeal which, established under the Act of 1894, has proved itself during the last ten years a well-constituted, impartial, and judicial tribunal, and we cannot help thinking that, when they have had time to think over the matter, the promoters of the Bill will see that, to say the least, a tactical error was committed in making what was commonly regarded as a thinly-veiled attack on that tribunal, which now has been endowed by Parliament with the important function of seeing that the London Building Acts, 1894 to 1905 are truly and impartially administered.

NOTES.

British Canals.

GENERAL satisfaction will be felt that the important subject of inland navigation has been brought for discussion before the Institution of Civil Engineers by the paper read on Tuesday by Mr. J. A. Saner. The most practical suggestion in this paper was that direct water communication, available for barges up to 250 tons capacity, should be established between five points in the approximately rectangular figure of which the corners are represented by London, Hull, Liverpool, and Bristol. These ports are four of the points, and the fifth is Birmingham, the centre of the figure. Of course, it would be useless to connect London and Hull in the east, or Liverpool and Bristol in the west, as the sea in each case is the cheapest possible waterway. Hence the proposal of the author for diagonal lines passing through Birmingham, and horizontal lines connecting London with Bristol, and Liverpool with Hull. Communication of a kind already exists on each route, some portions of the rivers and canals permitting navigation in a satisfactory manner, but the remaining sections require considerable expenditure in remodelling works. The main project put forward by the author is of a generally practicable nature, and if carried out it would constitute a useful instalment of reform. But the scheme is not free from difficulties, the chief of these being the questions of finance and of the increased water supply required for the greatly enlarged locks proposed. We have no doubt, however, that the second difficulty—which is well illustrated by the hilly route between London and Birmingham—could be largely reduced by the use of hydraulic canal lifts, and possibly also by pumps for returning water discharged from locks to the upper level. When complete, the discussion of this paper will certainly afford valuable technical matter for the guidance of those who are working for the restoration of our neglected inland waterways.

Water Pollution.

A USEFUL study of the typhoid fever epidemics at Lincoln, Maidstone, and Worthing is contained in the paper read by Dr. Childs before the Incorporated Society of Medical Officers of Health. The water supply to each of these towns represents a type of supply constantly liable to pollution, and occasionally to infection with typhoid fever germs. From the evidence available, the author draws the conclusion that any community may use with impunity a grossly and constantly polluted water supply for a long succession of years, until by some combination of circumstances specific germs are introduced under conditions favourable for the infection of consumers. We must point out, however, that at Lincoln the water was naturally bad apart from typhoid infection, whereas in Maidstone and Worthing it was normally of good quality. Dr. Childs makes several proposals providing for the more adequate examination of public water supplies and for inquiry into outbreaks of water-borne disease. However excellent suggestions of the kind may be, their adoption could be of little use under present conditions. The history of the Lincoln outbreak teaches us that it is not sufficient to detect dangerous features in a given supply. There must be power to compel the water authority to take notice of the warning given. To safeguard the general water supplies of the country it is necessary that plenary powers should be vested in bodies dealing with far greater areas than those of existing sanitary authorities.

Rural Housing.

THE most useful and practical speech made in the discussion on the Rural Housing question at the Sanitary Institute on Tuesday, was that of Miss Cochrane, since it gave definite information, obtained at first-hand, as to what some of the rural population do or do not want. Miss Cochrane had been interviewing a large number of the wives of agricultural labourers in several counties. One thing we have learned as the result is that they very much like to have a parlour besides the kitchen; we, among others, were under the impression that this was superfluous, but it is evident that the inhabitants of the cottages, at all events, do not think so. They want three bedrooms (in which they are quite right), and they want a good-sized larder, the larder being put apparently to a rather general use for storage. They do not, it appears, want a fixed bath; some were even contemptuous on the subject, thinking it a reflection on them, and affirming that they could keep their children clean without that fixture. This is, of course, partly want of habit; but it must also be said that as long as dwellers in rural districts are obliged, as is too often the case, to go a considerable distance for every pail of water they want (often obtaining it then from a polluted source), the large fixed bath is rather a mockery, for it could not be filled. Some of these

* Definitions of rack-rent under:—

Factory and Workshop Act, 1901, and Public Health Act, 1875.	London Building Acts (Amendment) Act, 1905, and Public Health (London) Act, 1891.
"Rack-rent" means rent which is not less than two-thirds of the full net annual value . . . and the full net annual value means the rent at which the property might reasonably be expected to let from year to year free of all usual tenant's rates and taxes and tithe commutation rent-charge (if any), and deducting therefrom the probable average cost of the repairs, insurance, and other expenses (if any) necessary to maintain the same in a state to command such rent.	"Rack-rent" means rent which is not less than two-thirds of the full annual value . . . and the full annual value shall be taken to be the annual rent which a tenant might reasonably be expected, taking one year with another, to pay for the premises, if the tenant undertook to pay all usual tenant's rates and taxes and tithe commutation rent-charge (if any), and if the landlord undertook to bear the cost of the repairs and insurance, and the other expenses (if any) necessary to maintain the premises in a state to command such rent.

arrangements in the Garden City houses seem to have been made with the impression that there would be water laid on. There are many rural districts where this is, as yet, merely a Utopian dream.

Another City Fire Case.

SOME practical points distinctly worth attention were brought out in the course of the fire inquest held last week by Dr. Waldo, the City Coroner. The fire, which took place at 49, Queen Victoria-street, was evidently due to the short-circuiting of electric current conveyed by imperfectly protected conductors in the basement, where wood and inflammable rubbish were littered. To make matters worse, the lift casing was of wood, and timber had been employed to a very large extent in the construction of office and other partitions throughout the building. In spite of previous warnings, property owners continue to permit the enclosure of electric light cables and wires in wood casing, presenting no obstacle to the access of damp, which sooner or later causes a short-circuit, with the result that the conductors are fused, and combustible materials in their vicinity are set on fire. The recommendation of the jury "that all electrical wires throughout the building should be encased in metallic tubing" is right, but it does not go far enough. The tubing and joints should be perfectly watertight and insulated against external heat, conditions that are not secured by common types of tubular conduit. We fully agree with the remarks made by Colonel Fox that the lift ought not to have been lined with wood, and that there was far too much of that material about the building. One other feature deserving the most severe criticism is the inadequate means of escape provided for inmates in case of fire.

Telegraphy and Telephony.

MR. J. GAVEY, the Engineer to the Post Office, gave the presidential address to the Institution of Electrical Engineers last week. Choosing as his subject the progress that has been made in telegraphy and telephony, his address appealed more to telegraph engineers, by whom the Institution was originally founded, than to the modern electricians who are mainly interested in lighting and traction. We were very glad to learn that the Post Office is thoroughly alive to the great progress that has been made recently in the development of electrical theory, and that they are carrying out elaborate experiments to see how far these developments can be utilised in practice. A formula has been found for the limiting distance to which speech can be carried by overhead wires of given capacity, and thus telegraph engineers can work with confidence, knowing that they have only to contend with faulty workmanship, and not with faulty theory. By placing inductance coils in telephone cables it has been found that the speaking range has been very considerably increased: in one case the speaking range was increased from 63 to 176 miles. This method, proposed about twenty years ago by Heaviside, is an excellent example of the commercial value of advanced mathematical theory. Considerable improvements have also been made in work with underground cables. With Wheatstone apparatus a speed of 200 words a minute can be attained between London and Glasgow, the lines being connected at Preston by a repeater. It is hoped that the London to Glasgow underground telegraph line will be opened early next year. We were surprised to learn that, notwithstanding the invention of the many types of printing, writing, and drawing telegraphs, the Morse code and the Morse apparatus are still practically universally used. The Post Office is at present considering the relative merits of two different types of automatic apparatus. In one a perforated strip of paper is used for transmission, and at the receiving office a similar strip is perforated the exact counterpart of the original. When placed in a type-printer the message is printed in ordinary letters. In the other method the message is printed directly at the receiving office.

The Dilluth Transporter Bridge.

OUR readers are already familiar with the type of transporter bridge as erected at Runcorn and Newport in Great Britain and across various estuaries on the Continent. A distinctly novel form of design is embodied in the structure completed this year for the transportation of street traffic across the ship canal between the City of Dilluth and Minnesota Point, the latter being a natural breakwater separating Dilluth harbour from Lake Superior. As long ago as 1889 suggestions were made for the construction of a bridge similar to that built at Rouen by M. Arnodin. It was proposed later by Mr. C. A. P. Turner that a girder instead of a suspension span, and a stiffly-suspended car in place of one hung by cables, would be more economical as well as more satisfactory. Judging by the description and drawings given by Mr. Turner in a paper read before the American Society of Civil Engineers, we think the two contentions are fairly substantiated so far as this particular example is concerned. It must be pointed out, however, that the span is only 393 ft. 9 in. from end to end, and that a similar design would be out of the question for a bridge such as that across the Mersey. The details in the paper mentioned are of considerable interest, especially those relating to the method of bringing the travelling carriage to a standstill in the dock at each end of the bridge.

Concrete Buildings in Liverpool.

NOTWITHSTANDING the usefulness of destructor clinker as an aggregate in concrete making, municipal authorities often experience difficulty in disposing of this product in a remunerative manner. Liverpool is a case in point, for in that city, out of some 50,000 tons of clinker produced annually, about 15,000 tons have to be deposited in the sea at the cost of the ratepayers. With the laudable object of reducing this waste both of money and of good material, the city engineer has applied destructor clinker in the manufacture of concrete foundations and paving blocks, and more recently in building workmen's dwellings of clinker concrete with a small proportion of steel reinforcement. The first building of the kind is a three-storied block, covering an area of about 234 sq. yds., in which the foundations consist of concrete piers 12 ft. deep supporting flat arches, the walls and floors of separate concrete slabs, and the balconies, stairs, parapet walls, and chimney-tops of concrete specially moulded to the required form. All the slabs, blocks, and other moulded parts were made at the corporation workshops and carted to the site ready for erection. Openings for doors, windows, and fireplaces were moulded in the slabs, mortises and tenons being formed on the edges, so that the parts of the building could be securely jointed with cement mortar. Although the system of construction is certainly novel, it has objections. The weight of the slabs, ranging up to 11 tons each, necessitates heavy tackle for handling, and the completed structure cannot be anything like so firmly connected as monolithic concrete work, to say nothing of concrete-steel construction. Further, unless a regular demand can be established for slabs and blocks of given dimensions the cost of moulds must be excessively high.

The Midland Reafforestery Association.

AN appeal has just been made by the officers of this Association for funds to help it to carry on its work. Its labours are undoubtedly beneficial. Its object is to cover the bare and hideous pit mounds with trees. Anyone who has seen one of these disused banks must admit it is about as ugly and depressing an object as can be imagined. But, as there are certainly 30,000 acres of waste area, it is obvious that, if this quantity, or the 14,000 acres which the Association estimate can profitably be covered with trees, is planted, a considerable supply of timber will in course of time be grown. Such timber must necessarily vary in quality; but, though the utilitarian object of the Association must not be overlooked, its first claim on public support is that it will restore a large area of English country to something of the agreeable character which it once possessed.

Winchester Cathedral.

IN our "Note" of June 3 last, relative to the threatened portions of Winchester Cathedral, we pointed out that until the completion of borings then in progress it would be impossible to decide upon a scheme for insuring the complete safety of the structure. The object of the borings was to obtain definite information as to the stratum of gravel, 16 ft. below the surface, underlying the bed of loamy soil insufficiently supporting the foundations some 10 ft. below the surface. This bed of soft material is permanently washed by water, which rises some feet above it in wet seasons. From the reports submitted to the Dean and Chapter by Mr. J. B. Colson, Mr. T. G. Jackson, and Mr. Francis Fox, it appears that the gravel is perfectly capable of supporting the underpinning works that are necessary. The authorities are to be congratulated upon this finding, which limits the depth of the underpinning to about 6 ft. The presbytery south wall, where the most serious movement has occurred, is at present

securely shored, and Mr. Jackson recommends that after it has been consolidated by grouting and bonding, the work of underpinning should be taken in hand. The east wall of the south transept, where sufficiently alarming subsidence is evident, also requires underpinning, and so does the central column of the crypt vaulting which is stated to be in a critical condition. There is no doubt that the danger in these parts of the building is of such urgent character as to demand immediate attention, after which some less alarming but sufficiently serious dilapidations will have to be made good.

Romsey Abbey, Hampshire.

STEPS are being taken by a local committee to celebrate at Whitsuntide, 1907, the thousandth anniversary of the foundation of Romsey Abbey, and to organise some historical pageants and tableaux after the manner of the recent celebration at Sherborne. The story of the foundation of the Abbey Church, dedicated to SS. Mary and Elfleda, does not seem as yet to be precisely ascertained. The generally received account is that King Edward the Elder (901-925) established there some Benedictine nuns with his daughter Elfleda as first abbess, and that in 967 King Edgar augmented the foundation. All of the earlier abbesses were of royal lineage, and to the nuns was entrusted the education of many princesses, one of them being Matilda, daughter of Malcolm III. of Scotland, and wife of Henry I. There are some traces of the abbey buildings, but of the Saxon church, which the Danes plundered, no vestiges remain above ground *in situ*. The erection of the Norman church is attributed to King Stephen's daughter Mary, Countess of Boulogne and Mortaigne, who went to Romsey, as abbess, from St. Leonard's, near Stratford, London. She married Matthew, son of Theodore, Count of Flanders, but the Pope compelled her to return to Romsey. The benefactors to the abbey were numerous. At the time of the surrender the revenues were valued at 528*l.* 18s. 10½d. per annum. In 35 Hen. VIII. the site was granted to the townsmen, and three years afterwards to one Bigot and John Bellew. A history, written by Mr. E. Loftus Brock, of the cruciform church, which is notable for the chapels at the ends of the choir-aisles, semi-circular within and square-ended without, with illustrations and a plan after drawings by Mr. R. Phenè Spiers and Mr. C. E. Mallows, form No. XV. of our series "The Abbeys of Great Britain," October 5, 1895. The oak shelter (1898) of the carved crucifix on the west wall of the south transept was designed by W. Butterfield.

Birthplace of Oliver Goldsmith.

THE owner of an estate at Smithill, Co. Roscommon, seeks to recover possession of the property and to eject the present tenant. At the hearing of the case in the course of last week at the Boyle Quarter Sessions it was stated in evidence that it is believed that Oliver Goldsmith was born in the house which belongs to the property. In his "Life and Times of Oliver Goldsmith," 6th edition, 1875, John Forster avers the poet was born—as Dr. Johnson sets forth in the epitaph he wrote for the memorial in Westminster Abbey—at Pallas (or Pallice), a remote village on the south bank of the River Inny, in the county of Longford, the property of the Edgeworths of Edgeworthtown in that same county. Forster also says that a tradition that the old parsonage house was afterwards haunted by good fairies did not save it from being levelled to the ground. Some may read in the words *in loco cui nomen Pallas* of the epitaph an allusion to the tutelary goddess, but the context dissipates the conceit, and there can be no doubt that at the time of Goldsmith's birth his father held the living of Pallas, in the parish of Forney, near Ballymahon.

Roman Wall of London, Jewry Street.

A FRAGMENT of the City Wall has just been laid bare in the course of excavation for the building of some new premises in Jewry-street, on the south side of Aldgate. The piece of wall is 12 ft. high and about 9 ft. thick, and its upper surface lies 8 ft. beneath the soil. At that spot the wall lies almost due north and south in its course from the old Postern-row, at Tower-hill, to the bend, north-westwards, at Aldgate. Between those limits it traverses George-street, Tower-hill, passing along the west of the Crescent, America-square, and New-square, Minories, and continuing thence between Vine and Little George streets, and Crutched Friars and Jewry-street. Of the last-named thoroughfare it forms the boundary on the east side, in part, of the street.

Society of Portrait Painters.

THE most interesting part of the exhibition of the Society of Portrait Painters at the New Gallery is, in an artistic sense, the collection of sculpture got together in the Central Hall, by Messrs. Gilbert Bayes, Bertram Mackennal, E. Roscoe Mullins, and F. M. Taubman. A good many of the more important works have been exhibited before, but they are such as one is glad to see again; and the collection forms a kind of representative illustration of the art of four very gifted sculptors. Mr. Mackennal's large group of two figures for the Tympanum of the new Public Offices at Westminster it is rather difficult to judge of apart from the whole composition; separately, and seen close at hand instead of in the intended position, it looks rather violent in action, but may fall into line well enough in its place on the building. His small marble relief, "Mother and Child" (heads only), which we do not remember to have seen before, is a very expressive work. Passing from the sculpture to the portraits which form the ostensible object of the exhibition, we can find nothing to call a great portrait; but there are some fine works, a good many clever ones, and some, like M. Besnard's "M. Frantz Jourdain" (43) and Mr. Orpen's "Portrait of a Man" (59), which seem intended to show how far the fashionable cult of the ugly and repulsive can be carried into portrait painting; and a portrait of a woman, we cannot say a "lady," by Mr. J. E. Blanche, is a terrible example of absolute vulgarity. The portrait of his mother by the late A. Stuart-Wortley (18) is perhaps the most dignified work in the collection. Various portraits of men by Mr. John Bowie, of the Royal Scottish Academy, are good examples of vigorous, straightforward portraiture, of the kind which aims rather at being a likeness than a picture. M. Besnard's "Madame Nocard" (19) is an example of the peculiarly French style of hard, glittering highly-finished portrait; the opposite extreme, that of rough modelling of the features in which every brush-mark is palpably visible as such, may be seen in Mr. Orpen's heads of Mr. T. W. Russell and Mr. W. O'Brien (38 and 48), representing only what may be called the scaffolding for a portrait; forcible, but not attractive. In the North Room Mr. Spencer Watson's "Miss Snowdon" (58), Mr. Collier's "Professor Vines" (73), and M. Nicolet's "Egerton B. Coghill, Esq." are good pictures. Perhaps the most pleasing work in the galleries, in an artistic sense, is Mr. Herman Herkomer's pastel of Mrs. C. C. Rogers (125) in the South Room; a portrait noticeable both for effective colour and for its fine and graceful lines of composition.

Drawings by Mr. Alfred East, A.R.A.

AT Messrs. Dowdeswell's Gallery is a very interesting collection of landscapes in water-colour by Mr. Alfred East, noticeable especially for this, that they do not consist of landscape studies all in one style and one class of effect, but represent an effort to treat each subject as a special problem to be worked out in its own way. Thus there is far more variety of style than we usually find in an exhibition of the works of one artist. The finest thing is "The River at Avranches" (11), a scene with masses of trees beneath a sky of massed white clouds; a landscape well worth working out on a large scale as an oil picture. "A Showery Day, Venice" (8) and "Sunset, Venice" (22), with a tumultuous crimson-lit sky over it, are things from entirely a different world of landscape-painting from the Avranches scene. The one numbered 39, which had the wrong title to it in the catalogue (at least on the day of our visit), is a forest scene with a distant view of Château Gaillard between the trees; a fine example of landscape composition in the repeating lines of trees, clouds, and distant château. The small drawing called "The Meadow" (34) is one of the same class, a broad little composition with a fine sky. "A Festa, Venice" (3), is different again from any we have named, being essentially a foreground garden picture with figures, and a misty sunlit Venice in the background. In the smaller room is a small collection of the artist's vigorous and effective etchings.

The "Purple Patch."

THE second "spasm" of the "Purple Patch," which is otherwise called *The Tufton St. Tatler*, appears, we are glad to see, with an artistically designed cover instead of the shapeless patch which characterised the first issue. In other respects the second issue is an advance on its predecessor; there is a good deal of clever fun in it, and the imitation of Tennyson in the lines on testing a drain is very good. But may

we be allowed to suggest that it is not quite "good form" to write a satirical description of the work of an architect with an assumed name which at once points to a personal application. Satire should deal with types, not with individual names under a transparent disguise.

London Street Noises.

WE print on another page a statement as to a Bill which is to be promoted for enabling (or we hope obliging) the police to take more direct and repressive methods of dealing with two of the curses of London life, the newsvendor ruffian and the organ-man. We hope all our readers who can in any way support the objects of this Bill will do so. The state of things at present in regard to these two nuisances is a disgrace to London. The By-law passed some little time since to prohibit the shouting of newspapers in the streets is, as far as its operation is concerned, a mere farce. It might have been supposed that when a by-law had once been passed against shouting papers down the streets, a policeman could have taken into custody any man found infringing it. Nothing of the sort; the police either have no power or will not exercise it—indeed, they seem generally to be on the side of the offenders; the householder whose Sunday evening is made hideous by the cries of these ruffians can get no redress except by following the man till he finds a policeman, going to the police office to charge him, and attending at court the next day to give evidence, with the probable result of the man being merely discharged with a "caution." As to the barrel-organs, they are a barbarism which is allowed in no other capital in Europe, and ought to have been peremptorily put a stop to long ago; and their existence is actually supported by Philistines who regard them—save the mark—as "music."

WORKMEN'S COMPENSATION.

THE Court of Appeal have commenced the present session by sitting to hear some thirty appeals under the Workmen's Compensation Acts. The list contains about the same number of these appeals as in May, when the court last sat to determine such cases. The case of Rogers *v.* Mayor, etc., of Cardiff (the *Builder*, November 4) well illustrates the difficulty in determining the area of employment, especially in connexion with "engineering works," a difficulty which will disappear when the amending Act is passed, which would carry out the recommendation of the Departmental Committee that the Act should apply as long as any workman is engaged on the duties he is employed to perform. In the case in question a workman was employed by the Corporation of Cardiff to repair the overhead wires of the electric tramway system. To do this he was using a trolley called a "tower waggon," and he had completed the repair at a certain point and was driving this waggon to a point three-quarters of a mile distant, following the line of tramway, when the horse bolted, and the man was thrown out and injured 200 yds. away from the spot where he had completed the last repair. It was contended that the accident had not happened "on, in, or about" the engineering work, but the Court of Appeal, affirming the County Court judge, held that the accident happened in physical contiguity to the engineering work, and that the Act was not limited to the particular spot requiring repair. This case alone would not appear to offer difficulties, but it has to be brought in line with former decisions. Thus in Back *v.* Dick, Kerr, and Co., which we commented on May 27, 1905, where a man was injured whilst stacking timber to be used by his employers in reconstructing a tramway, in a station yard 700 yds. away from where the work on the tramway was being carried on, he was held to be outside the Act, and in our Note on Pattison *v.* White (November 19, 1904) we cited the cases which showed how arbitrary the line of demarcation was. From the above case and from the case of Back *v.* Dick, Kerr, and Co. this much appears clear, that the man must be engaged directly upon the engineering work itself, and not upon any incidental process, and the employment must also be within the physical area of the work.

It must be noticed also that "tramways" are not within the Act except in so far as some work of construction, alteration, or repair is being carried on in relation thereto so as to bring the operation within the definition of an "engineering work." The Departmental Committee, however, advised their inclusion, and the Bill to amend the Acts contained a clause to this effect.

The Court of Appeal has, however, just decided another case (Adams *v.* Shaddock) dealing with this question, which certainly offers some points of difficulty. In this case the claim was in respect of the death of a workman employed by a contractor who had contracted with a telephone company to carry a telephone wire underneath a road upon which a tramway ran. For this purpose a trench had been dug in the road close up to one of the lines of rails, and the workman was engaged in boring under the rails to another trench made between the two lines of rails when he was killed by a passing car. The working of the tramway was not at all interfered with, and the County Court judge had found that this was not employment on an engineering work as being an alteration of a railroad, and the work was not being carried on by or for the proprietors of the railroad. The majority of the Court of Appeal found that this operation involved an alteration of the railroad or tramway, but the Master of the Rolls expressed doubt in so doing, and Lord Justice Romer dissented, and the case will probably be carried to the House of Lords. The Master of the Rolls said a common-sense interpretation had to be given to the Act, and seems to have formed his judgment with a view to attaining that end. Lord Justice Romer used the same words in arriving at his interpretation of the law, but it led him to an opposite conclusion, and this case exemplifies the danger of interpreting statutes by common sense. As laymen we may perhaps venture to express the opinion that common sense or the beloved "man in the street," so often met with nowadays in the Law Courts and out of his proper sphere, would lean to Lord Justice Romer's view. The man was engaged by a telephone company to do work solely connected with the telephone, and the tramway was undisturbed. Telephones are not at present within the scope of the Act, but the Departmental Committee has recommended their inclusion.

Another case connected with "engineering works" is Morris *v.* Lambeth Borough Council. The Council were engaged in some operation upon a sewer, and the applicant was a night watchman. There was a watch-box, in which he could sit, which had a fire before it, but he went to a "shanty," which was erected for the workmen's tools, as it was raining hard, to cook his supper. The "shanty" fell upon him and injured him. It was contended the accident had not occurred out of and in the course of his employment, as he ought not to have been in the "shanty," and the County Court judge had so held, but the Court of Appeal reversed his judgment. The case seems to fall within the rough working test which has been deduced from former decisions, that as long as a man is furthering his employer's business he is within the Act, unless he is guilty of wilful misconduct. The preparation and taking food was necessary to his duties.

A case of importance is that of Howells *v.* Thomas (the *Builder*, October 28) in relation to "quarries." A builder was building two cottages upon an estate for two persons who had permission to take stone from a quarry upon the estate, and the deceased workman had engaged to fetch the stone from the quarry at so much a load. The important point in the case is the decision that the builder was the "undertaker" in relation to the quarry. By the Act the "undertaker" in the case of a "quarry" is defined to be the occupier within the meaning of the Factory Act, but this Act contains no definition of what is meant by the word "occupier," and in connexion with other undertakings the employment has to be on the employer's own undertaking, and he is not liable if a workman is doing work for him in somebody else's factory. The present decision seems to show that a temporary occupation in fetching stone from the quarry is sufficient in such a connexion, but, as we have repeatedly pointed out, the matter should not be left in doubt when the Act is amended, and the Departmental Committee have overlooked this point. In the case of docks, wharves, quays, and warehouses a special definition of "occupation" is given by the Factory Act and incorporated in the Workmen's Compensation Act, "the person having the actual use or occupation," and those words have been interpreted to mean just such a temporary use or occupation as the facts in this case disclose. This definition in any future statute should be extended to quarries.

The only further case at present decided requiring notice in these columns is that of Osmond *v.* Campbell and Harrison. In that case a man had been killed, and his widow was claiming compensation, and the decision turns only upon the amount of compensation which should be awarded. The man's wages as a wool-comber were 19*s.* 10½*d.* a week, and his wife by taking in a little washing made 1*s.* 10½*d.* a week, and therefore she could only claim as being "partially dependent" upon her husband, and in such a case the Act provides that in default of agreement the amount must be determined on arbitration to be such as is reasonable and proportionate to the injury to the said dependents, but not exceeding that compensation which is fixed by the Act where dependents are wholly dependent. The County Court judge had awarded 150*l.*, or 5*l.* less than if the widow had been wholly dependent, but it was contended he should have deducted such an amount as it was necessary the man should expend upon himself. The Court of Appeal negatived this contention, and held that no such considerations entered into the scheme as to partial dependents as apart from the principles laid down in cases of total dependency, and that the County Court judge, having considered the amount of the partial dependency, had exercised his discretion rightly.

THE SOCIETY OF PAINTERS IN WATER-COLOURS.

THOSE who wish to see the best bit of work in the Society of Water-colours' winter exhibition should go straight to No. 155, "Evensong," by Mr. E. R. Hughes, a half-length of a woman in some kind of religious dress holding an infant in her arms. The face of the woman, partially turned upwards and aside from the spectator, and therefore in a very difficult position, is one of the most finely-drawn and modelled heads we have seen for some time, and has the beauty of sentiment and expression as well. There is no other picture in which the figures are predominant which can compare at all with this. Mrs. Stanhope Forbes's "By the Light of the Camp Fire" (170) is a bold sketch of strong colour effect, hung apparently with intention next to Mr. Weguelin's cold blue picture, "A Pastoral" (167), which has however a pretty poetic fancy about it; but this artist's nude nymphs (see also No. 54) are too cold in colour to give the sensation of life; they are like statues in a landscape. Miss Fortescue-Brickdale is not at her best in "The Greatest of These is Charity" (45), except as regards colour; "The First-born" (153) is more true to her best ideals in composition as well as in colour. In "The Sleeping Beauty" (24) Mr. Anning Bell, while showing admirable drawing and colour, has contrived to take all the poetry out of a lovely legend by the coarse character of the personages depicted huddled together in sleep—not so much ladies-in-waiting as kitchen-maids. Mr. Walter West is not equal to himself in "Chrysanthemums" (160), one of those interiors with a richly-dressed figure of a

lady which he has made his peculiar "note"; it would pass for a very good work if it were not for comparison with its predecessors of the same type; the figure is not interesting in expression, and has too much the air of stiffly posing for her portrait; but we regard it as only a passing failure; so able an artist is pretty sure to find himself again in future works. It is rather amusing to see Mr. Arthur Hopkins, in "One of Our Great-grandmothers" (269), making such a palpable imitation of Mr. West, even to the peculiar manner of treating the texture of the furniture surroundings. Miss Rose Barton, always delightful in treating children, shows a charming baby under the high-sounding title "The Honble. Madelina, Daughter of Lord Grenfell" (208), and in her architectural interior of "Sunday in St. Bartholomew the Great" (88) it is the little child on the bench who really makes the picture, for which the rest is only a setting. Mr. Rackham's grotesques we suppose we must put up with for their misdirected ability, until the artist or the public get tired of them; but in his street scene under the title "The Little Piper" (191) the group of children in the foreground is charming; if he would only take to child pictures and let bogies alone he would become one of the most charming contributors to the exhibitions. The more or less clever vulgarities of Mr. Glindoni and Mr. Henshall, worse than ever this year (see Nos. 247 and 248), are unworthy of the walls of the Society; and a better man, Mr. Walter Crane, exhibits a drawing of two ladies seated in a hammock (256), and looking just like two dolls, which for his own sake he had better not have shown.

Landscape is, as usual, the strongest element of the exhibition, and in this respect it is quite up to the usual high level maintained in this gallery. If we class sea-pieces with landscape, perhaps the strongest exhibitor is Mr. Napier Hemy, who shows his finest powers in his three principal works, "Breezy Weather" (77), "Hauling Crab-pots" (85), and "Moonlight at Sea" (90). The last-named is a real moonlight effect; in the first-named the rush of the boat through the water is splendidly conveyed; and in "Hauling Crab-pots," where the boat goes from the spectator, just lifting over a wave, and the man in the bows is pulling with his hands on a level with his head at the clumsy sea-oars, one can almost feel the motion of the boat and the tug at the oars. No one but a painter practically acquainted with sea-boating could have painted that; and it is worth noting how thoroughly and specially English is this kind of art; you find no sea or boat painting with the truth and reality of this in any other country; certainly we have never seen any.

Among landscapes in the usual acceptation of the word we are much interested in what, as far as we can remember, is the first extended landscape with a wide distance that we have ever seen with the name of Mrs. Allingham to it, and a most beautiful and delicate work it is—"Freshwater Bay from the Farringford Fields" (242). Mr. Phillip's two Highland landscapes (61, 178) are as finely composed and built up as usual; we may have seen even better ones, but they keep up his reputation. Mr. Eyre Walker's "Twilight: on the Lowther" (26) is a grand landscape on a small scale; the finest perhaps of his eleven contributions, all of which, however, show the artist as a true student of Nature and a follower of the best school of water-colour art, with no tricks of effect or handling. Compare "A Dorsetshire Upland" (107) with the drawing (108) hung below it, in which Nature only subserves a trick of mannerism, and the difference will be apparent. "Fallow Land in Surrey" (221), with the carpet of white flowers and the blue spikes of the fox-glove bushes sticking up out of it, is an interesting record of a curious natural effect, though it does not make one of the best pictures. Mr. Cuthbert Rigby makes a fine foreground picture out of "Foxgloves near Ambleside" (292), and his "Caudale Beck" (298) is, like the one just mentioned of Mr. Walker's, a grand landscape on a small scale. Then we have Mr. A. Goodwin's important series of contributions. "Ceylon's Isle" (12) is an attempt to render the tone of tropical sea and tropical landscape; a very bright and exotic-looking scene, in which the bright blue of the sea is broken by innumerable touches of warm brown; the whole effect to the eye is that of a bright blue sea; it is only on minute inspection that one notices this treatment for rippling up the surface. "Taj Mahal" (31), seen in silhouette with a red sunset sky behind it, is an effective landscape, though the Taj does not do much more than give a name to it. "Siena" (43) is one of the artist's delicate town pictures, with the distant architecture perhaps a little too clear and precise in detail; "Etna and Taormina" (49) is a fine landscape and at the same time a representation of one of the most interesting of archæological relics; among others are "Stonehenge" (159), or rather, a red sunset with "the stones" (as they are called in the neighbourhood) introduced as an incident; "The Road to Monreale, Sicily" (188), a classic hillside road with Renaissance steps and balustrades to right of it; and "Bristol—When the Day's Work's Done" (137), a quay scene in which the surface of the quay becomes the same tone as the side of the ship; a little device for breadth of effect which is rather artificial (for the light is not gone sufficiently for that), but which may pass as producing the pictorial sentiment desired.

Mr. Robert Little's art is of the opposite kind—broad and full of a rich warmth of colour, with rather a neglect of detail, and sometimes of composition, as is the case certainly with "Watford from Hamper Mill" (17), which is very ragged; his best work here is the small landscape on Screen II., "Nets on the Solway" (282), which has the making of a larger work in it. Mr. Paterson is an artist who carries the culture of colour *minus* detail still further, and his landscapes and sea-pieces are often mere blots of effect; in the present exhibition he has two Edinburgh pictures, "Grassmarket" and "Greyfriars Churchyard" (63 and 81); his rather woolly style has been somewhat modified for the painting of buildings, and the Grassmarket houses with the dark-purple silhouette of Castle Hill behind them make an effective picture, but we have always thought that an expanse of wet street and reflections is a very cheap and easy way of getting an effect. Yet it cannot be denied that Mr. Paterson's drawings, though somewhat eccentric in method, are usually interesting; it is difficult to understand why Sir E. Waterlow's landscapes, which have everything to recommend them in the way of composition, balance of style, and true water-colour treatment, yet mostly fail to interest us. The merits of composition and style belong just as much to Mr. Eyre Walker, Mr. Phillip, and Mr. Cuthbert Rigby—there is not the slightest touch of eccentricity or sensationalism about any of their work, but it is all interesting; and it is difficult to see exactly why such obviously good and sound work as Sir E. Waterlow's is nevertheless somewhat dull. Mr. Wilmot Pilsbury's works continue as good and complete in their own style as ever; it is a somewhat prosaic and somewhat mechanical style, and yet retains a hold upon one by the really conscientious work displayed in it, which is at all events different from the mere conventional spotting of Mr. Gregory's trees, which one sees in drawing after drawing, just the same every time, and just as uninteresting. Mr. R. W. Allan's is a much broader and more vigorous style, but this also tends to become a little too much of the repetition of one effect. Among other landscapes to be noticed are Miss Alice M. Swan's spring scene (162) having for title a well-known line of Browning's—this is a landscape of great originality and force of treatment, and with a real look of spring in it; Mr. H. Alexander's little picture, "Sea Vale Farm" (62), very simple but with a real charm of colour and composition; Mr. Smythe's "Gathering Dandelions" (11), a hill with one figure on it, somewhat reminding one of the style and feeling of Frederick Walker; Mrs. Allingham's "The Kitchen Garden, Farringdon" (66); an excellent bit of foreground study in "Studland Bay" (92), by Mr. Arthur Hopkins; "The Happy Valley" (134), a landscape with a peculiar warm light over it, by Mr. Little; "Evening on the Arun" (130), by Mr. Tom Lloyd; "Evening on the Somme at Amiens" (95), by Mr. Herbert Marshall; "A Little Garden" (234), by Miss Constance Phillott, with a most successful and charming effect of sunlight; Mr. Hughes's curious little experiment in the head on Screen I. called "Dusky Night" (272), in which he has endeavoured to produce the effect of actual confiscation of light from the stars around the head; and Mr. Walter West's drawing of a white horse on the cliffs, entitled "Moonrise Over the Sea" (18); the horse is very well drawn, but one does not quite see how the horse's head and neck come to show light against the moon.

Among the drawings in which architecture holds a prominent place (besides those already mentioned) the most important perhaps is the fine set of three drawings in one frame of "The Manor-house of Faulin" (259), one of the series of drawings of ancient architecture which Mr. T. M. Rooke is making for the Municipal Gallery at Birmingham. The building is a most interesting and picturesque piece of mediæval architecture, and the drawings as good as they well could be. Among Mr. Rooke's other exhibits is one of "Sculpture in the North Transept, Semur" (70), a very good piece of detail. Among Mr. Herbert Marshall's thirteen contributions a particularly interesting one is "A City of Burgundy" (25), with its ancient bridge and a huge round tower forming a prominent object in the centre of the picture. "Laon" (42) is also a fine piece of architectural composition. Mr. Reginald Barratt has a fine drawing of "A Courtyard of the Alhambra" (72), and another of "Cranborne Manor" (89), an old Renaissance house in the foreground, beyond the angle of which is seen a bit of sunlit lawn and hedge. "Dedham Lock" (109), a bit of timber construction, is an interesting drawing out of the artist's usual beat. Mr. Cameron's "The Citadel" (225), which appears to be merely an imagination, is a finely composed and effective view of a mass of old fortifications built along a headland, and in this case the artist has fortunately discarded the too black and colourless tones which characterise many of his water-colour drawings, and led us to remark that they looked like an etcher's water-colours; in this drawing there is a fine warm colour pervading the composition. Miss Montalba's Venetian drawings are becoming too slight and careless of everything but her favourite effect of colour to be of much value as architectural subjects. We may conclude by calling attention to the very fine drawing of "Durham" (122), exhibited by a very old member, Mr. Callow, and noted in the catalogue as "Painted from Nature, 1843." The grave and severe scale of colouring belongs to the artistic habit of a past day; but the solid force and power of the work are undeniable, and we may congratulate the veteran artist on having such a fine record of his youthful work to show us.

EGYPT EXPLORATION FUND.

THE nineteenth ordinary general meeting of this Fund was held on Friday in last week at the rooms of the Royal Society, Burlington House, under the chairmanship of Sir John Evans, K.C.B.

Mr. H. A. Grueber read the treasurer's statement, which showed that on the Fund proper there was a large deficit, but the deficits on the archæological survey and the Græco-Roman branch were not so serious. The position as regarded the Exploration Fund was serious if they considered that only two years ago it had a balance of over 3,000*l*. He accounted for last year's deficit by the fact of the Fund having undertaken two expeditions and by the falling off of subscriptions from America. As the deficit arose this year from precisely the same causes, it was very evident that in future the scope of the Fund's work would have to be brought within a more limited area.

The statement was adopted.

The Chairman, in the course of his annual address, first referred to the losses the Fund had sustained in the deaths of Mr. William Fowler, Sir Charles Wilson, Mr. F. D. Mocatta, Mr. G. Wedgwood, Dr. Cross, Mr. J. W. Anderson, and Mr. J. Morris. Their work during the past season, notwithstanding the low condition of their finances, had been carried on in two directions—first by Professor Petrie, principally in Sinai; and secondly by M. Naville and Mr. Hall, whose work at Deir el Bahari they

we be allowed to suggest that it is not quite "good form" to write a satirical description of the work of an architect with an assumed name which at once points to a personal application. Satire should deal with types, not with individual names under a transparent disguise.

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WE print on another page a statement as to a Bill which is to be promoted for enabling (or we hope obliging) the police to take more direct and repressive methods of dealing with two of the curses of London life, the newsvendor ruffian and the organ-man. We hope all our readers who can in any way support the objects of this Bill will do so. The state of things at present in regard to these two nuisances is a disgrace to London. The By-law passed some little time since to prohibit the shouting of newspapers in the streets is, as far as its operation is concerned, a mere farce. It might have been supposed that when a by-law had once been passed against shouting papers down the streets, a policeman could have taken into custody any man found infringing it. Nothing of the sort; the police either have no power or will not exercise it—indeed, they seem generally to be on the side of the offenders; the householder whose Sunday evening is made hideous by the cries of these ruffians can get no redress except by following the man till he finds a policeman, going to the police office to charge him, and attending at court the next day to give evidence, with the probable result of the man being merely discharged with a "caution." As to the barrel-organs, they are a barbarism which is allowed in no other capital in Europe, and ought to have been peremptorily put a stop to long ago; and their existence is actually supported by Philistines who regard them—save the mark—as "music."

WORKMEN'S COMPENSATION.

THE Court of Appeal have commenced the present session by sitting to hear some thirty appeals under the Workmen's Compensation Acts. The list contains about the same number of these appeals as in May, when the court last sat to determine such cases. The case of Rogers *v.* Mayor, etc., of Cardiff (the *Builder*, November 4) well illustrates the difficulty in determining the area of employment, especially in connexion with "engineering works," a difficulty which will disappear when the amending Act is passed, which would carry out the recommendation of the Departmental Committee that the Act should apply as long as any workman is engaged on the duties he is employed to perform. In the case in question a workman was employed by the Corporation of Cardiff to repair the overhead wires of the electric tramway system. To do this he was using a trolley called a "tower waggon," and he had completed the repair at a certain point and was driving this waggon to a point three-quarters of a mile distant, following the line of tramway, when the horse bolted, and the man was thrown out and injured 200 yds. away from the spot where he had completed the last repair. It was contended that the accident had not happened "on, in, or about" the engineering work, but the Court of Appeal, affirming the County Court judge, held that the accident happened in physical contiguity to the engineering work, and that the Act was not limited to the particular spot requiring repair. This case alone would not appear to offer difficulties, but it has to be brought in line with former decisions. Thus in Back *v.* Dick, Kerr, and Co., which we commented on May 27, 1905, where a man was injured whilst stacking timber to be used by his employers in reconstructing a tramway, in a station yard 700 yds. away from where the work on the tramway was being carried on, he was held to be outside the Act, and in our Note on Pattison *v.* White (November 19, 1904) we cited the cases which showed how arbitrary the line of demarcation was. From the above case and from the case of Back *v.* Dick, Kerr, and Co. this much appears clear, that the man must be engaged directly upon the engineering work itself, and not upon any incidental process, and the employment must also be within the physical area of the work.

It must be noticed also that "tramways" are not within the Act except in so far as some work of construction, alteration, or repair is being carried on in relation thereto so as to bring the operation within the definition of an "engineering work." The Departmental Committee, however, advised their inclusion, and the Bill to amend the Acts contained a clause to this effect.

The Court of Appeal has, however, just decided another case (Adams *v.* Shaddock) dealing with this question, which certainly offers some points of difficulty. In this case the claim was in respect of the death of a workman employed by a contractor who had contracted with a telephone company to carry a telephone wire underneath a road upon which a tramway ran. For this purpose a trench had been dug in the road close up to one of the lines of rails, and the workman was engaged in boring under the rails to another trench made between the two lines of rails when he was killed by a passing car. The working of the tramway was not at all interfered with, and the County Court judge had found that this was not employment on an engineering work as being an alteration of a railroad, and the work was not being carried on by or for the proprietors of the railroad. The majority of the Court of Appeal found that this operation involved an alteration of the railroad or tramway, but the Master of the Rolls expressed doubt in so doing, and Lord Justice Romer dissented, and the case will probably be carried to the House of Lords. The Master of the Rolls said a common-sense interpretation had to be given to the Act, and seems to have formed his judgment with a view to attaining that end. Lord Justice Romer used the same words in arriving at his interpretation of the law, but it led him to an opposite conclusion, and this case exemplifies the danger of interpreting statutes by common sense. As laymen we may perhaps venture to express the opinion that common sense or the beloved "man in the street," so often met with nowadays in the Law Courts and out of his proper sphere, would lean to Lord Justice Romer's view. The man was engaged by a telephone company to do work solely connected with the telephone, and the tramway was undisturbed. Telephones are not at present within the scope of the Act, but the Departmental Committee has recommended their inclusion.

Another case connected with "engineering works" is Morris *v.* Lambeth Borough Council. The Council were engaged in some operation upon a sewer, and the applicant was a night watchman. There was a watch-box, in which he could sit, which had a fire before it, but he went to a "shanty," which was erected for the workmen's tools, as it was raining hard, to cook his supper. The "shanty" fell upon him and injured him. It was contended the accident had not occurred out of and in the course of his employment, as he ought not to have been in the "shanty," and the County Court judge had so held, but the Court of Appeal reversed his judgment. The case seems to fall within the rough working test which has been deduced from former decisions, that as long as a man is furthering his employer's business he is within the Act, unless he is guilty of wilful misconduct. The preparation and taking food was necessary to his duties.

A case of importance is that of Howells *v.* Thomas (the *Builder*, October 28) in relation to "quarries." A builder was building two cottages upon an estate for two persons who had permission to take stone from a quarry upon the estate, and the deceased workman had engaged to fetch the stone from the quarry at so much a load. The important point in the case is the decision that the builder was the "undertaker" in relation to the quarry. By the Act the "undertaker" in the case of a "quarry" is defined to be the occupier within the meaning of the Factory Act, but this Act contains no definition of what is meant by the word "occupier," and in connexion with other undertakings the employment has to be on the employer's own undertaking, and he is not liable if a workman is doing work for him in somebody else's factory. The present decision seems to show that a temporary occupation in fetching stone from the quarry is sufficient in such a connexion, but, as we have repeatedly pointed out, the matter should not be left in doubt when the Act is amended, and the Departmental Committee have overlooked this point. In the case of docks, wharves, quays, and warehouses a special definition of "occupation" is given by the Factory Act and incorporated in the Workmen's Compensation Act, "the person having the actual use or occupation," and those words have been interpreted to mean just such a temporary use or occupation as the facts in this case disclose. This definition in any future statute should be extended to quarries.

The only further case at present decided requiring notice in these columns is that of Osmond *v.* Campbell and Harrison. In that case a man had been killed, and his widow was claiming compensation, and the decision turns only upon the amount of compensation which should be awarded. The man's wages as a wool-comber were 19s. 10½d. a week, and his wife by taking in a little washing made 1s. 10½d. a week, and therefore she could only claim as being "partially dependent" upon her husband, and in such a case the Act provides that in default of agreement the amount must be determined on arbitration to be such as is reasonable and proportionate to the injury to the said dependents, but not exceeding that compensation which is fixed by the Act where dependents are wholly dependent. The County Court judge had awarded 150*l.*, or 5*l.* less than if the widow had been wholly dependent, but it was contended he should have deducted such an amount as it was necessary the man should expend upon himself. The Court of Appeal negatived this contention, and held that no such considerations entered into the scheme as to partial dependents as apart from the principles laid down in cases of total dependency, and that the County Court judge, having considered the amount of the partial dependency, had exercised his discretion rightly.

THE SOCIETY OF PAINTERS IN WATER-COLOURS.

THOSE who wish to see the best bit of work in the Society of Water-colours' winter exhibition should go straight to No. 135, "Evensong," by Mr. E. R. Hughes, a half-length of a woman in some kind of religious dress holding an infant in her arms. The face of the woman, partially turned upwards and aside from the spectator, and therefore in a very difficult position, is one of the most finely-drawn and modelled heads we have seen for some time, and has the beauty of sentiment and expression as well. There is no other picture in which the figures are predominant which can compare at all with this. Mrs. Stanhope Forbes's "By the Light of the Camp Fire" (170) is a bold sketch of strong colour effect, hung apparently with intention next to Mr. Weguelin's cold blue picture, "A Pastoral" (167), which has however a pretty poetic fancy about it: but this artist's nude nymphs (see also No. 54) are too cold in colour to give the sensation of life; they are like statues in a landscape. Miss Fortescue-Brickdale is not at her best in "The Greatest of These is Charity" (45), except as regards colour; "The First-born" (153) is more true to her best ideals in composition as well as in colour. In "The Sleeping Beauty" (24) Mr. Anning Bell, while showing admirable drawing and colour, has contrived to take all the poetry out of a lovely legend by the coarse character of the personages depicted huddled together in sleep—not so much ladies-in-waiting as kitchen-maids. Mr. Walter West is not equal to himself in "Chrysanthemums" (160), one of those interiors with a richly-dressed figure of a

lady which he has made his peculiar "note"; it would pass for a very good work if it were not for comparison with its predecessors of the same type; the figure is not interesting in expression, and has too much the air of stiffly posing for her portrait; but we regard it as only a passing failure; so able an artist is pretty sure to find himself again in future works. It is rather amusing to see Mr. Arthur Hopkins, in "One of Our Great-grandmothers" (269), making such a palpable imitation of Mr. West, even to the peculiar manner of treating the texture of the furniture surroundings. Miss Rose Barton, always delightful in treating children, shows a charming baby under the high-sounding title "The Honble. Madelina, Daughter of Lord Grenfell" (208), and in her architectural interior of "Sunday in St. Bartholomew the Great" (88) it is the little child on the bench who really makes the picture, for which the rest is only a setting. Mr. Rackham's grotesques we suppose we must put up with for their misdirected ability, until the artist or the public get tired of them; but in his street scene under the title "The Little Piper" (191) the group of children in the foreground is charming; if he would only take to child pictures and let bogies alone he would become one of the most charming contributors to the exhibitions. The more or less clever vulgarities of Mr. Glindoni and Mr. Henshall, worse than ever this year (see Nos. 247 and 248), are unworthy of the walls of the Society; and a better man, Mr. Walter Crane, exhibits a drawing of two ladies seated in a hammock (256), and looking just like two dolls, which for his own sake he had better not have shown.

Landscape is, as usual, the strongest element of the exhibition, and in this respect it is quite up to the usual high level maintained in this gallery. If we class sea-pieces with landscape, perhaps the strongest exhibitor is Mr. Napier Hemy, who shows his finest powers in his three principal works, "Breezy Weather" (77), "Hauling Crab-pots" (85), and "Moonlight at Sea" (90). The last-named is a real moonlight effect; in the first-named the rush of the boat through the water is splendidly conveyed; and in "Hauling Crab-pots," where the boat goes from the spectator, just lifting over a wave, and the man in the bows is pulling with his hands on a level with his head at the clumsy sea-oars, one can almost feel the motion of the boat and the tug at the oars. No one but a painter practically acquainted with sea-boating could have painted that; and it is worth noting how thoroughly and specially English is this kind of art; you find no sea or boat painting with the truth and reality of this in any other country; certainly we have never seen any.

Among landscapes in the usual acceptation of the word we are much interested in what, as far as we can remember, is the first extended landscape with a wide distance that we have ever seen with the name of Mrs. Allingham to it, and a most beautiful and delicate work it is—"Freshwater Bay from the Farringford Fields" (242). Mr. Phillip's two Highland landscapes (61, 178) are as finely composed and built up as usual; we may have seen even better ones, but they keep up his reputation. Mr. Eyre Walker's "Twilight: on the Lowther" (26) is a grand landscape on a small scale; the finest perhaps of his eleven contributions, all of which, however, show the artist as a true student of Nature and a follower of the best school of water-colour art, with no tricks of effect or handling. Compare "A Dorsetshire Upland" (107) with the drawing (108) hung below it, in which Nature only subserves a trick of mannerism, and the difference will be apparent. "Fallow Land in Surrey" (221), with the carpet of white flowers and the blue spikes of the fox-glove bushes sticking up out of it, is an interesting record of a curious natural effect, though it does not make one of the best pictures. Mr. Cuthbert Rigby makes a fine foreground picture out of "Foxgloves near Ambleside" (292), and his "Caudale Beck" (298) is, like the one just mentioned of Mr. Walker's, a grand landscape on a small scale. Then we have Mr. A. Goodwin's important series of contributions. "Ceylon's Isle" (12) is an attempt to render the tone of tropical sea and tropical landscape; a very bright and exotic-looking scene, in which the bright blue of the sea is broken by innumerable touches of warm brown; the whole effect to the eye is that of a bright blue sea; it is only on minute inspection that one notices this treatment for rippling up the surface. "Taj Mahal" (31), seen in silhouette with a red sunset sky behind it, is an effective landscape, though the Taj does not do much more than give a name to it. "Siena" (43) is one of the artist's delicate town pictures, with the distant architecture perhaps a little too clear and precise in detail; "Etna and Taormina" (49) is a fine landscape and at the same time a representation of one of the most interesting of archæological relics; among others are "Stonehenge" (159), or rather, a red sunset with "the stones" (as they are called in the neighbourhood) introduced as an incident; "The Road to Monreale, Sicily" (188), a classic hillside road with Renaissance steps and balustrades to right of it; and "Bristol—When the Day's Work's Done" (137), a quay scene in which the surface of the quay becomes the same tone as the side of the ship; a little device for breadth of effect which is rather artificial (for the light is not gone sufficiently for that), but which may pass as producing the pictorial sentiment desired.

Mr. Robert Little's art is of the opposite kind—broad and full of a rich warmth of colour, with rather a neglect of detail, and sometimes of composition, as is the case certainly with "Watford from Hamper Mill" (17), which is very ragged; his best work here is the small landscape on Screen II., "Nets on the Solway" (282), which has the making of a larger work in it. Mr. Paterson is an artist who carries the culture of colour *minus* detail still further, and his landscapes and sea-pieces are often mere blots of effect; in the present exhibition he has two Edinburgh pictures, "Grassmarket" and "Greyfriars Churchyard" (63 and 81); his rather woolly style has been somewhat modified for the painting of buildings, and the Grassmarket houses with the dark-purple silhouette of Castle Hill behind them make an effective picture, but we have always thought that an expanse of wet street and reflections is a very cheap and easy way of getting an effect. Yet it cannot be denied that Mr. Paterson's drawings, though somewhat eccentric in method, are usually interesting; it is difficult to understand why Sir E. Waterlow's landscapes, which have everything to recommend them in the way of composition, balance of style, and true water-colour treatment, yet mostly fail to interest us. The merits of composition and style belong just as much to Mr. Eyre Walker, Mr. Phillip, and Mr. Cuthbert Rigby—there is not the slightest touch of eccentricity or sensationalism about any of their work, but it is all interesting; and it is difficult to see exactly why such obviously good and sound work as Sir E. Waterlow's is nevertheless somewhat dull. Mr. Wilmot Pilsbury's works continue as good and complete in their own style as ever; it is a somewhat prosaic and somewhat mechanical style, and yet retains a hold upon one by the really conscientious work displayed in it, which is at all events different from the mere conventional spotting of Mr. Gregory's trees, which one sees in drawing after drawing, just the same every time, and just as uninteresting. Mr. R. W. Allan's is a much broader and more vigorous style, but this also tends to become a little too much of the repetition of one effect. Among other landscapes to be noticed are Miss Alice M. Swan's spring scene (162) having for title a well-known line of Browning's—this is a landscape of great originality and force of treatment, and with a real look of spring in it; Mr. H. Alexander's little picture, "Sea Vale Farm" (62), very simple but with a real charm of colour and composition; Mr. Smythe's "Gathering Dandelions" (11), a hill with one figure on it, somewhat reminding one of the style and feeling of Frederick Walker; Mrs. Allingham's "The Kitchen Garden, Farringdon" (66); an excellent bit of foreground study in "Studland Bay" (92), by Mr. Arthur Hopkins; "The Happy Valley" (134), a landscape with a peculiar warm light over it, by Mr. Little; "Evening on the Arun" (130), by Mr. Tom Lloyd; "Evening on the Somme at Amiens" (95), by Mr. Herbert Marshall; "A Little Garden" (234), by Miss Constance Phillott, with a most successful and charming effect of sunlight; Mr. Hughes's curious little experiment in the head on Screen I. called "Dusky Night" (272), in which he has endeavoured to produce the effect of actual confiscation of light from the stars around the head; and Mr. Walter West's drawing of a white horse on the cliffs, entitled "Moonrise Over the Sea" (18); the horse is very well drawn, but one does not quite see how the horse's head and neck come to show light against the moon.

Among the drawings in which architecture holds a prominent place (besides those already mentioned) the most important perhaps is the fine set of three drawings in one frame of "The Manor-house of Faulin" (259), one of the series of drawings of ancient architecture which Mr. T. M. Rooke is making for the Municipal Gallery at Birmingham. The building is a most interesting and picturesque piece of mediæval architecture, and the drawings as good as they well could be. Among Mr. Rooke's other exhibits is one of "Sculpture in the North Transept, Semur" (70), a very good piece of detail. Among Mr. Herbert Marshall's thirteen contributions a particularly interesting one is "A City of Burgundy" (25), with its ancient bridge and a huge round tower forming a prominent object in the centre of the picture. "Laon" (42) is also a fine piece of architectural composition. Mr. Reginald Barratt has a fine drawing of "A Courtyard of the Alhambra" (72), and another of "Cranborne Manor" (89), an old Renaissance house in the foreground, beyond the angle of which is seen a bit of sunlit lawn and hedge. "Dedham Lock" (109), a bit of timber construction, is an interesting drawing out of the artist's usual beat. Mr. Cameron's "The Citadel" (225), which appears to be merely an imagination, is a finely composed and effective view of a mass of old fortifications built along a headland, and in this case the artist has fortunately discarded the too black and colourless tones which characterise many of his water-colour drawings, and led us to remark that they looked like an etcher's water-colours; in this drawing there is a fine warm colour pervading the composition. Miss Montalba's Venetian drawings are becoming too slight and careless of everything but her favourite effect of colour to be of much value as architectural subjects. We may conclude by calling attention to the very fine drawing of "Durham" (122), exhibited by a very old member, Mr. Callow, and noted in the catalogue as "Painted from Nature, 1843." The grave and severe scale of colouring belongs to the artistic habit of a past day; but the solid force and power of the work are undeniable, and we may congratulate the veteran artist on having such a fine record of his youthful work to show us.

EGYPT EXPLORATION FUND.

THE nineteenth ordinary general meeting of this Fund was held on Friday in last week at the rooms of the Royal Society, Burlington House, under the chairmanship of Sir John Evans, K.C.B.

Mr. H. A. Grueber read the treasurer's statement, which showed that on the Fund proper there was a large deficit, but the deficits on the archæological survey and the Græco-Roman branch were not so serious. The position as regarded the Exploration Fund was serious if they considered that only two years ago it had a balance of over 3,000*l*. He accounted for last year's deficit by the fact of the Fund having undertaken two expeditions and by the falling off of subscriptions from America. As the deficit arose this year from precisely the same causes, it was very evident that in future the scope of the Fund's work would have to be brought within a more limited area.

The statement was adopted.

The Chairman, in the course of his annual address, first referred to the losses the Fund had sustained in the deaths of Mr. William Fowler, Sir Charles Wilson, Mr. F. D. Mocatta, Mr. G. Wedgwood, Dr. Cross, Mr. J. W. Anderson, and Mr. J. Morris. Their work during the past season, notwithstanding the low condition of their finances, had been carried on in two directions—first by Professor Petrie, principally in Sinai; and secondly by M. Naville and Mr. Hall, whose work at Deir el Bahari they

were on many grounds bound to continue. Having referred to the work of Professor Petrie, the Chairman said the further excavations at the temple of Mentuhotep III. at Beir el Bahari had taken place, but the work was still unfinished. Messrs. Naville and Hall, with the aid of Mr. E. R. Ayrton and Mr. Garnett-Orme, had laid bare a large portion of this ancient monument, the principal exposures being the ramp, the southern colonnade, and the great central platform. This square mass, the side walls of which are but slightly battered, does not appear to be the base of an actual pyramid, though it might possibly have been surmounted by a kind of small ceremonial pyramid. No tomb had yet been found in the platform, but around several tombs of princesses and priestesses had been opened. In most of them were stone sarcophagi, some monolithic, but others constructed of limestone slabs, six in number, jointed together in the same manner as if they had been made from planks of wood. From the sculptures found in the tombs it was evident that the sculptor's art during the XIIth Dynasty must have attained to a marvellous perfection in Egypt. In a branch valley of that of the Tombs of the Kings the presence of Mr. T. M. Davis and Mr. T. E. Quibell enabled them to lay bare the entrance to a new sepulchre midway between those known as Nos. 3 and 4. The sepulchre was full of sepulchral furniture, and the tomb proved to be that of the parents of the renowned and beautiful Queen Thi, wife of Amenhetep III. M. Legrain had continued his important work at the Temple of Karnak, and the eleven fallen columns had now been reconstructed and the foundations of nine others made good. In all 16,000 objects had been recovered, ranging in date from the time of Usertsen III. to the XXIXth and XXXth Dynasties, to which latter period the majority of the statues belong. M. Garstang had made excavations between Edfu and Esna, in Upper Egypt, and amongst other discoveries was that of a necropolis, in which 188 graves were examined. Dr. G. A. Reisner had continued his exploration to the north of the great Pyramid of Gizeh, and his work had revealed the history of the royal cemetery of Gizeh. In the Sudan interesting explorations had been made in the country near the second cataract and at Merve. Dr. Budge and Mr. J. W. Crowfoot had finally cleared out the shrine of the largest pyramid, and found in it the remains of the end relief, consisting of three figures —Osiris, the Queen, and Tsis, or Nephthys. This illustrated the art of the period to which the pyramids belong, and showed that, although it was based on an Egyptian original, it developed along lines of its own. Besides the work at Meroe, Dr. Budge and Mr. Crowfoot made excavations at Soleb, where they found some stone altars, etc., on the island of Sai, at Amara, and on a considerable scale at Semna. At this last-mentioned place they found an entirely unknown temple, built by the Nubian king Tirhakah, and dedicated by him to the great conqueror of Nubia. Usertsen III. In this temple they found the altar, with its inscriptions in situ, and, very strange to say, a small statue of a king of the XIIIth Dynasty, who had hitherto only been known from the king lists. Having referred to the work of Dr. Grenfell and Dr. Hunt amongst the mounds of Oxyrhynchus, the Chairman touched on the unsatisfactory state of the finances of the Fund, and said that it had been decided to carry out the work at Deir el Bahari and to suspend the agreement with Professor Petrie. Professor Petrie, being thrown more or less on his own resources, had made strenuous efforts to increase the efficiency of the Egyptian Research Account, with the view of carrying on researches in Egypt during the forthcoming season, and had already had a site in the delta of the Nile allotted him.

Professor Flinders Petrie then addressed the meeting, and said that, as it was impossible to conduct any large excavations, like those at Abydos, with the small resources which could be spared from other work of the Fund, the scope of his party last winter lay rather in copying than in excavation. A much neglected site, which was suited to such work, was found in Sinai, where no attempt had been made to clear the temple of Serabît, and no copyist had stayed more than a day or two. This work which they had in view was further facilitated by the elaborate compilation of the inscriptions from all existing sources by Capt. R. Weill ("Recueil des Inscriptions Égyptiennes du Sinaï"), and the author requested to join their party, and assisted in checking copies while he was with them, during the earlier half of the season. They turned over many of the mining heaps of the Egyptians at Maghareh, and settled that they only worked there for turquoise. The inscription of Semerkhet of the Ist Dynasty was refound, drawn, and photographed. A new inscription of Sa-nekht, the founder of the IIIrd Dynasty, was discovered; it showed that this king was of strongly Ethiopian type, thus suggesting a southern invasion at that time. The inscription of Zeser was also refound and drawn complete. The later inscriptions from Khufu to the XIIth Dynasty had been mainly destroyed by recent mining; on his reporting this, Sir William Garstin provided a credit for the removal of the sculptures to Cairo, and Mr. Currelly undertook that work successfully after excavating season was over. At Serabît el Khâdem they cleared out completely all the temple and its surroundings. It was proved to have been founded as early as Sneferu, by a hawk of his dedicated here and other references. The plan of the building was very imperfectly known before, and many fresh features were brought to light. A large number of inscriptions were found which had not been seen in modern times, while the known inscriptions were completely copied for the first time, mainly by his wife and Mr. Button, with all the positions recorded and the parts co-ordinated. Photographs were also freely taken, some 300 being brought away. The small objects were found in great numbers, but all had been broken anciently. The most interesting was an exquisite portrait of Queen Thi, with her name on the crown; it had been broken from a statuette, but no other pieces were found. This was in the front rank of Egyptian sculpture, and is also of great historic interest. Many small steles and statuettes were found; one stele was remarkably dated in the eleventh year of Queen Nefru.ra, as if she were recognised as the legal heir of her father, Tahutmes II. Many hundredweights of broken offerings of glazed ware formed a stratum at the base of the ruins. They were sorted over by Miss Eckenstein; the greater part were of bowls and vases, others were glazed plaques of Hathor and the cat, menats, sistra, wands, and bracelets. The names on these extend from Aahmes Nefertari to Rameses VI. Some inscriptions in unknown characters, from the temple and the mines, appeared to be five or six centuries older than the earliest Phoenician. The evidences of Semitic worship were prominent here, in each respect being of a kind unknown in Egypt. Three large lavers were placed in the temple, and another at the door; these were evidently for ceremonial ablutions, as the two largest chambers of the temple had a laver in the centre of each, surrounded by four pillars. Such ablutions as a main feature in a temple were unknown in Egypt, but are essential in Jewish and Muslim worship. A great mass of ashes, of which at least 50 tons remained, covered the high place before the sacred cave; these were clearly the result of burnt offerings, from their position. No such offerings on a high place were known in Egypt, and any trace of burnt offerings was very unusual there, whereas in Palestine the burnt sacrifice and offering of incense on the high place was the custom. The incense altars found in the shrine were also Semitic, as the Egyptians always burnt incense on a metal shovel held in the hand. The system of sacred stones, or bethels, set up so frequently on the high places in Sinai was adopted by the Egyptians, who had left a series of such in association with little shelters along the road leading to the temple. No such arrangement was known in Egypt. The study of the records of the expeditions would throw light on various titles and on the Egyptian organisation. They had thus not only cleared an important outlying district where Egypt was long dominant, but had obtained unexpected light on Semitic ritual, older than any traces in Palestine and Arabia. Though the work was undertaken mainly for copying, yet it was seldom that so many objects had been recovered by something less than 150*l.* worth of excavations. In conclusion, Professor Petrie said that, after nine years' work, he had to say farewell to the Fund. He would have preferred that the committee had decided differently, but he would be able to carry on his explorations by the support he had received. Through the British School of Archæology he should continue to train students, and hoped that that school would co-operate in the work like the British School at Athens did with the work there.

Dr. B. P. Grenfell followed with an address on the excavations of Dr. Hunt and himself at Oxyrhynchus, and had finished the northern part of the site with great success. The papyri mainly belonged to the first four centuries of the Christian era, with some admixture of both earlier and later ones, including a certain number of Hebrew and Syriac fragments. Amongst the most important of the new classical pieces he might signalise some tragic fragments, perhaps belonging to the Tyro of Sophocles and the Oineus of Euripides. Fresh evidence on that difficult subject of Greek music was provided by a fragment of a discourse by an author who must be older than Aristoxenus, and Professor Blass assigned the discourse probably to Hippias of Elis, the contemporary of Socrates. Turning to the non-literary documents, the first place was claimed by a long papyrus containing an astronomical calendar for Sais in about B.C. 300.

The Chairman, in proposing a vote of thanks to Professor Petrie and Dr. Grenfell, expressed the hope that the separation of Professor Petrie from the Fund would not be for long.

A vote of thanks was accorded the Chairman on the motion of Mr. T. H. Baylis, K.C., seconded by Mr. J. S. Cotton.

THE BRITISH SCHOOL AT ROME.

THE annual meeting of the subscribers of the British School at Rome was held in the rooms of the Society of Antiquaries, Burlington House, on Tuesday evening. Professor H. F. Pelham presided, and there were also Present Sir John Evans, Sir A. Geikie, Professor Waldstein, Mr. G. Macmillan, Professor E. Gardner, Mr. A. H. Smith (Treasurer), Mr. H. H. Statham, Mr. J. Baker-Penoyre (Secretary), etc.

The fifth annual Report of the Managing Committee referred to the work done by the Director and students, particularly in the direction of cataloguing the collection of sculpture in the municipal museum of the Museo Capitolini, the Palazzo dei Conservatori, and the Magazzino Archæologico. The Committee desired to draw attention of friends of the school to the plan for giving the library a character of its own, and making it a valuable addition to the Archæological Libraries in Rome. While it was doubtless necessary to have at hand a set of text-books and indispensable books of reference, the Committee desired further to make it as complete as possible in its possession both of standard works of British archæologists and of the important British archæological periodical publications.

The Chairman, in moving the adoption of the Report, said the most important, and in some sense the most satisfactory, statement was that with reference to the grant which the Government had decided to make to the school. They were grateful to the large number of people throughout the country who signed the memorial, and he doubted if any memorial was ever sent in the signatories of which was more representative of the educated opinion throughout the country. There was scarcely a public school, University, or University college not represented. It was an encouraging sign that public opinion in the country was slowly forming itself, and that the conviction was growing of the great importance, not merely of individual study, but of organised study, and of some centre where organised study could be pursued. The Government grant began next year, and they had been obliged to hold over the more efficient arrangements they had hoped to make until they were in possession of a larger income. They had still a great deal to do. Both they and their elder sister, the School at Athens, still lagged far behind the great foreign schools in the matter of income and of efficiency of

equipment. No one could enter the German Institute at Rome without feeling something like a sense of shame when he compared the provision made, not only by Great Britain, but by the United States. They had other difficulties. Whereas the German or French student went to the German Institute or the Ecole de Français knowing that he had something like a career marked out before him, the British student knew that the time spent at the school led practically to nothing. They did want something more in the way of an organised career, and he hoped that, with an increased sense of that in the Universities and also by the increase in the number of Universities, they would be able to offer to students something more in the nature of an assured career. There was also ingrained in them a certain individualism, which had its merits, but which did not always lead them to value co-operative work. There, again, a change was coming, and they were beginning to see that a great deal of the most important work could only be done by co-operation. Still, they had got on, and he said, without exaggeration, that the published papers of the school had taken a high place and had been appreciated by foreign scholars. There was a great variety of work to be done; and he hoped no one would go away with the opinion that the School at Rome was either purely classical or purely archæological or purely Oxford and Cambridge. Rome was a place where there was an infinite variety of lines of study which might be profitably followed, and they were in the school prepared to welcome every man wherever he came from who was anxious to pursue in a serious and scientific spirit a general line of study in Rome and Italy. There were fields still untouched. There was mediæval history. He was anxious that the British school should produce under its auspices an account of the English in Rome. The materials were there, and if mediæval historians would supply them with a man they would do their best for him. There was also an enormous amount of work to be done with architectural buildings—Renaissance buildings and others. They had made a beginning there, and had had two architectural students, and around the room they would see the drawings which Mr. Orr made in the past season, and they would say that the drawings reflected great credit on Mr. Orr and the school.

Sir A. Geikie seconded the motion, and the Report was adopted.

Mr. H. Stuart Jones, late Director of the School, gave an account of some Roman historical sculpture in the light of recent studies. He illustrated his remarks by a series of lantern slides. He said that the study of Roman historical sculpture and the history of art in general in the Roman Empire, which had been long undeservedly neglected, had in the last ten years been in the foreground of archæological discussion. So far, the harvest which had been reaped had fallen almost entirely to Continental, and mainly German, scholars. When the British school was established in Rome it was the legitimate expectation that British scholars would do something to increase the knowledge on this subject, and he thought it was fair to say that this anticipation had been justified. In the two years during which it had been his privilege to be Director of the school he paid much attention to the subject, and was ably seconded by other members of the school, and it was only fitting that he should mention Mr. A. J. B. Wace, some of whose work was about to be published, and Mr. A. H. S. Yeames, now of the British Museum. They were able to further the cause of scholarship in three ways. Firstly, by the eradication of certain deep-seated errors prevalent amongst archæologists; secondly, by exhibiting more clearly than before the continuity and development of Roman art by filling up certain gaps in its history; and thirdly, by the deduction from the study of its monuments facts which were of value and importance to the historian. The results of some of their studies were about to be published in the third volume of the papers of the school, but he proposed to give a few of the results they had succeeded in obtaining, and he began at the earliest point. A great deal was already known as to the art of the Augustine Age and the art of the Flavian Age, but they were now enabled to correct some errors and to fill up the gap between them. Augustus transformed the art which existed in the great Hellenic Period, and the characteristics of this art were found in the processional frieze with the series of portraits of the Imperial family of the Ara Pacis. They noticed the rigid classicism of this art, and it was quite obviously the natural successor of the Parthenon. If they passed on to Flavian art, they found the reliefs in the passageway of the Arch of Titus, which had been held to illustrate the great features of Flavian art. Coming next to the bas-reliefs in the Villa Borghese, they knew that these had been attributed to the arch erected by Claudius to commemorate the conquest of Britain; but their attribution to the Arch of Claudius rested on very doubtful testimony. The composition was very clumsy, and had such extraordinary mistakes that it seemed impossible that it could occupy a space midway between the Ara Pacis and the Arch of Titus. There was no longer any need to think that that was so, because their pedigree had been ascertained up to a certain point, and it was found that the reliefs had once been used in the decoration of a church in the neighbourhood of Forum. The reliefs could be traced as far back as the XVIth century, so that they could have had nothing to do with the Arch of Claudius discovered in 1852. Proceeding to deal with the circular medallions of the Arch of Constantine, Mr. Jones said that recent attempts had been made to attribute them to the reign of Hadrian, but a close examination of the figures on the rough face showed that the Emperor was beardless, and therefore not Hadrian. The features, however, were so defaced that it was difficult to say who it was meant for. The medallions on the north face had undergone restoration in ancient days, and the original heads of the Emperor had been substituted by other heads. One was the head of Constantine, but in the other two medallions the heads were clearly not those of Constantine. That, he felt, could only have one meaning, viz., that the heads were those of Claudius II., from whom Constantine claimed to be descended. Illustrating the panels which decorated the Arch of Constantine, but which belonged to the period of Marcus Aurelius, Mr. Jones said he had shown by comparison that the heads were quite modern, and were probably put there by Pope Clement in 1731. Certain historical deductions could be made. The panels represented the return of Marcus Aurelius to Rome, and showed that in the course of the wars on the Danube Marcus actually came back to Rome, which some historians had denied, and said that he did not come to Rome for eight years. There was no doubt but that distinct historical deductions could be made from a close study of these monuments, and he hoped the work would be continued.

Professor E. Gardner proposed the re-election of the President, of Mr. A. H. Smith as Treasurer, of Mr. E. Waterhouse as Auditor, of Mr. F. J. Haverfield and Mr. Geo. Macmillan on the Committee, and of Mr. Baker-Penoyre as Secretary, and the election of Sir E. Egerton and Mr. H. Stuart Jones to the Committee.

Mr. G. F. Hill seconded the motion, and it was agreed to.

Sir J. Evans proposed a vote of thanks to the Chairman, and this being carried the meeting terminated.

ROYAL SANITARY INSTITUTE.—The following is the list of those who were elected as Fellow, Members, and Associates in November of this year: *Fellow*—Major W. H. Horrocks, R.A.M.C., M.D. (Gibraltar). *Members*—R. Nusserwangi Coorlawala, L.R.C.P., L.R.C.S. (Edin.); H. E. Corbin, M.R.C.S., L.R.C.P. (Willesden); G. C. Hancock, M.R.C.S., L.R.C.P. (Gravesend); H. L. Heath, L.S.A. (Ipswich); T. Salkield (City Engineer, Delhi); W. M. Willoughby, B.A., M.D. (Gravesend); J. M. Wilson, M.D. (York); K. W. Adcock (Bradford); W. J. Dunning (Colwyn Bay). *Associates*—T. J. Bernes (Woodford); H. Coleman (London); E. R. Cunliffe (Rochdale); J. Dempsey (Salford); T. Douglas (Percy Main); E. Evans (Cricklewood); W. Fowler (Leeds); J. R. Hargraves (Milnrow); C. Lewis (Crewe); Miss M. A. Lloyd (Birmingham); E. Rees (Cowbridge); F. G. Sendell (Walthamstow); J. T. Shawcross (Didsbury); F. R. Thorley, jun. (Selly Park); P. Williams (Liverpool); H. Woodham (Southampton).

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE second meeting of the Discussion Section of the Architectural Association was held at 18, Tufton-street, on Wednesday, the 8th inst., Mr. E. W. Wonnacott in the chair, when Mr. Stanley Towse read a paper on "Libraries."

He said that a suitable site should be centrally, but not noisily, situated in the most populous district of the town.

It should be open, so that good lighting and cross ventilation are secured, and, where possible, of a rectangular shape, with main entrance on the long side. A corner site is of advantage in securing separate entrances for staff, and children, if the latter is desirable at all.

The accommodation required usually consists of news and reading rooms, reference, and children's rooms; lending library, with workroom and lavatory for the staff; a librarian's or committee room; book store and heating in basement; and caretaker's rooms on first floor. In the case of a larger library, accommodation for the librarian's household, consisting of some seven or eight rooms.

The next point is whether the lending library is to be on the "closed" or "open access" system. The former, with its long counter and indicator, is the one generally adopted in this country, probably owing to its greater cheapness, as less floor space is required. Probably, also, those responsible for the promotion of libraries have not yet realised the very great advantage the "open access" system gives to the public. An excellent example of a library on the latter system is the Kingston Library, by Mr. Alfred Cox. Also that at Kettering, by Messrs. Goddard, Paget, & Catlow. In this is an inclosed space, measuring about 10 ft. by 5 ft., for the attendants, surrounded by a counter, with a barrier outside each end, to be used as inlet and outlet. These are controlled by the attendants by means of foot pedals. In very large libraries two inlet barriers are advisable.

It is possible to deal with five or six borrowers a minute, so that the staff can be reduced to a minimum. Not only do the public have a better opportunity of choosing their books, but it is found that the loss of books is less than with the indicator or "closed" system. The arrangement in which all the bookcases radiate from the counter, as at Kettering, looks very attractive in a competition drawing, but is wasteful, and the complete supervision it is supposed to give may be easily spoilt by one or two people standing at the near end. The approximate difference in accommodation between the two systems is that a room, measuring 40 ft. by 30 ft., with shelving 7 ft. 6 in. high, will take 24,000 volumes on the indicator or "closed" principle, including the counter and borrowers' public space; whereas a room, 52 ft. by 35 ft., on the "open access" system, with shelving 8 ft. high (this is rather too high), will only accommodate 25,000 volumes, but, after all, very few libraries require space for more than 20,000 volumes, and only a few reach that number. Moreover, books are continually getting out of date, especially text-books; these are discarded, and so make room for others.

The key-note in library design is simplicity, both in planning and materials, and good supervision from the lending library, so that the staff may be reduced to a minimum. In a very large library the latter point is not so important, as there must be attendants in each room. The best way to obtain good supervision is to carry the upper internal walls on piers or columns, filled in with glass screens.

Varying levels in the floors, especially odd steps, should be avoided. The entrance-hall and corridor (if any) should be well lighted and ventilated. Lighting on both sides of indicators is absolutely necessary. The librarian's room should be off the lending library, and in touch with the reference library, and it need not necessarily command a view of all the rooms. The staff and workrooms, the latter being very necessary, should be off the lending library. Lavatory accommodation for the public is to be avoided, unless actually asked for; but where a lecture-hall is provided, it is advisable. Heating should be by radiators; fires require too much attention, and encourage loafing.

In arranging the various departments on

plan a good method is to place the lending library (when on the "closed" system) centrally, with its long counter directly opposite the main entrance. This can generally be easily done when you have a rectangular open site, with entrance on the long side; a good example is the admirable library at Hammersmith, by Mr. Henry T. Hare. In dealing with a deep site, arrange a wide corridor straight up the middle from the main entrance, with the lending library counter parallel to one side, and set well back from passage, the news and reading room on the other, and the reference at the end, as in Mr. Bakewell's design for Ilkley. For a corner site with entrance at the angle, the plan of Darlington Library is a good one. Here there is a vestibule off the porch, opening into a public space, with lending library in front, the counter running the whole length of room. The general reading-room and ladies' room are on the right, and reference and committee rooms on the left. The library consists of one floor only, and is almost wholly lighted from the top. A recent idea is to treat the whole area as a one-storied hall, dividing it into different departments by glazed screens, as at Plaistow Library, by Mr. S. B. Russell.

In fitting up a library it is best for the firm who supply the fittings also to supply and fix the glass screens, as it usually works out cheaper. The question of the wood to be used for fittings depends on the money available. Where possible, use oak, which looks very well when slightly stained and waxed. A good and cheaper wood is "Sequoia," which somewhat resembles mahogany, and is about half the cost of oak. The ends only of bookcases in libraries on the indicator or "closed" system need be of oak, if they are arranged so that the ends face the counter. The bookcases need not exceed 7 ft. 6 in. to 8 ft. in height, giving eight shelves and the plinth, nine in all. Allowing nine volumes per foot, gives 162 volumes to each foot of double-fronted bookcase, 1 ft. 8 in. wide. A space of 3 ft. to 3 ft. 6 in. should be given between each bookcase, but where the "open access" system is adopted the minimum should be 4 ft. The length of the lending counter, which should be 3 ft. high and 2 ft. wide, is governed by the length of the indicators required for record. Cotman's indicators, which are usually considered the best, are made in multiples of 1,000, each requiring 12 in. to 15 in. linear, provision being made for two or three openings, 3 ft. to 4 ft. wide, for issue and return of books. A small table for the assistant, commanding the counter, is necessary, besides the workroom; and a small lift to the store-room, if on a different floor, is very useful. If the reference library adjoin the lending library, a small counter between the two is an advantage. The windows to the lending library should be high up to give as much space for bookshelves as possible, and augmented by a lantern, if practicable. The top of this should not be glazed if sufficient light can be had without, as otherwise the sun may make the room very hot.

In fitting up the news and reading rooms, wall-stands should be used for newspapers rather than pedestals, as the latter stop all supervision. For wall-stands, allow 3 ft. 6 in. to 4 ft. linear per paper. At present it is a question whether newspapers should have any place at all in a library, as they tend to attract a certain class not wholly desirable. In one new library it is proposed to do away with all newspapers except the *Times;* but to provide for those seeking employment the advertisements of vacant situations will be cut out of the three best papers and posted up outside at seven in the morning. In the reading-room allow for tables, 3 ft. wide, with 5 ft. or more between, and allow 2 ft. for each person. The reference-room is sometimes provided with bookcases, which may even be carried to the ceiling, if extra shelving is required, without much inconvenience to the staff. The special tables, measuring about 3 ft. by 2 ft., with raised back and shelves, are better for reference-room use than the ordinary tables, and may be placed back to back. A showcase for recent books may be put in a convenient corner of the entrance-hall. Revolving doors may be used for entrances, but the danger arising from a fire panic is to be considered, and probably two sets of swing doors, with a heated vestibule between, are better.

Materials should be local where possible, and selected with an eye to future maintenance. Iron casements, if arranged for easy cleaning, are convenient. The hall and corridor may be paved with marble, tiles, or similar material. Neither wood block nor floor boarding are ideal floor coverings; they are apt to wear unevenly, and to harbour dirt. Granolithic, finished with a fine face, and cork carpeted, is said to be good; but in this case provide broad bases to the chairs. A glazed brick or tile dado, about 4 ft. 6 in. high, round all public rooms is desirable; the upper part being finished in paint or light distemper. Internal woodwork may be of varnished pitch-pine, or whitewood stained and varnished; paint is not wholly desirable.

The ventilation for large libraries may be on the "Plenum" system. In small libraries use air inlets behind radiators, and ceiling outlets connected to a roof ventilator.

Mr. S. K. Greenslade, in opening the discussion, said that sites, especially of central libraries, should allow of lecture halls, galleries, and other extensions being added. Librarians were still undecided as to the merits of "closed" or "open access," but no doubt the latter would eventually win. The objections urged were wastefulness and misuse. The first might be removed by adopting the American method of forming the end wall circular on plan and using the space below as a lecture-hall; the latter by the more extensive use of children's rooms, so that they are early trained in the proper use of books. These rooms only require simple furniture of varying heights, low bookcases, a space for attendants and books of the lending library, and a wash-basin for the children's use. American architects have had fine opportunities of planning on a large scale, and the keynote is usually the great octagonal or circular domed reading-room. Here, in spite of the famous example of the Radcliffe at Oxford, this has not been generally adopted; but the new library at Eton College, forming part of the Memorial buildings, is on these lines. The library at Bristol and the competition just decided for the Mitchell at Glasgow are the only recent examples of large scale planning. The latter offered an interesting problem—viz., the storage of 250,000 volumes within reach of the delivery counter of a library meant solely for reference purposes. Mr. Greenslade concluded by urging architects to consider more fully the architectural quality of planning as well as mere convenience.

The discussion was continued by Messrs. A. H. Belcher, Lovegrove, Hamp, Nicholson, and Collins. Mr. Cecil Davis, Librarian of Wandsworth, pointed out how planning and site are influenced and bound by the limits of the penny rate. He finds the newsroom still useful, and that its defects can often be removed by tactful supervision. Lavatories for public use were condemned utterly. While pointing out the objections to librarian's residence on the premises, he personally preferred the system. Fire risk, lighting, ventilation, and heating—low pressure preferable for latter—were mentioned. He supported the general adoption of linoleum as a floor surface, and preferred iron bookcases to wood. Open access was not favoured for fiction issue, and in any case needed as much supervision as the indicator system.

The discussion was summed up by Mr. H. T. Hare, who emphasised the point that bad sites being the rule, and not the exception, cramped planning was becoming general. Except for reference purposes, one large hall subdivided formed the best library. Open access, if merely considered as tending to spaciousness, was the better system. The lending library usually had to hold too many books; 10,000 to 12,000 were quite enough, if storage was arranged. He considered that the newsroom would soon be obsolete. The best floor as yet was linoleum on granolithic. He agreed with every speaker in condemning sanitary provision for the public, and equally disliked the provision of a librarian's house as part of the library. Lending libraries might very well be put upstairs, beside the reference, thus bringing all the library staff together. A porter would then take charge of all the public ground floor rooms. As to price, 8d. per foot was the minimum, 9d. and 10d. being more usual for detached libraries.

Mr. Towse shortly replied. After votes of thanks had been passed to the author, and to Mr. Hare for his attendance, the meeting terminated.

SEVENTH INTERNATIONAL CONGRESS OF ARCHITECTS.

THE seventh International Congress of Architects is to be held in London from July 16 to July 21 of next year, under the auspices of the Royal Institute of British Architects; their President, Mr. John Belcher, being the acting President also of the Congress, the Prince of Wales being Honorary President.

It is to be hoped that a large number of English architects, both in London and the Provinces, will become members of the Congress and take an active part in endeavouring to render it a success in the eyes of our foreign visitors.

The complete programme, and the question of the place or places of meeting and of the visits and entertainments which will form part of the proceedings, is still in preparation, and details will no doubt be furnished for publication in our pages later on. In the meantime, however, the Executive Committee have drawn up the following list of subjects for discussion:—

1. The Execution of Important Government and Municipal Architectural Work by Salaried Officials.
2. Architectural Copyright and the Ownership of Drawings.
3. Steel and Reinforced-Concrete Construction: (*a*) The general aspect of the subject; (*b*) With special reference to æsthetic and hygienic considerations in the case of very high buildings.
4. The Education of the Public in Architecture.
5. A Statutory Qualification for Architects.
6. The Architect-Craftsman: How far should the Architect receive the theoretical and practical training of a Craftsman?
7. The Planning and Laying-out of Streets and Open Spaces in Cities.
8. Should the Architect have supreme control over other Artists or Craftsmen in the completion of a National or Public Building?
9. The Responsibilities of a Government in the Conservation of National Monuments.

The Executive Committee will be glad to receive papers on any of the above subjects for presentation to the Congress. Papers may be written in English, French, or German.

Each paper must be accompanied by an abstract of not more than 1,000 *words.*

Papers and abstracts must reach the Executive Committee before April 30, 1906.

All communications to be addressed to the Secretary of the Executive Committee, 9, Conduit-street, London, W.

THE SURVEYORS' INSTITUTION.

THE opening meeting of the Surveyors' Institution for session 1905-06 was held on Monday at No. 12, Great George-street, S.W., Mr. Charles Bidwell, M.A., President, in the chair.

The minutes of last meeting having been read by the Secretary, Mr. Goddard, and confirmed,

Mr. Percivall Currey, Hon. Secretary, announced that a long list of donations to the Library and the Library Fund had been received, and these having been taken as read, a vote of thanks was accorded to the donors.

New Hon. Members.

The President then announced that, at a meeting of the Council that afternoon, the following gentlemen had been unanimously elected as Hon. Members of the Institution, *i.e.*:—Judge Wheeler, K.C., Judge Hans Hamilton, and Mr. Julian C. Rogers, the late secretary, who had served the Institution so faithfully for so many years.

The Council's Gold Medal.

He also stated that the Council's gold medal for the best paper read during last session had been awarded to Mr. E. Morton, barrister-at-law, for his paper entitled "Surveyors' Reports and Certificates."

President's Address.

The President then read his address, in the course of which he dealt at some length

with several matters affecting agriculture. In reference to the fall in the value of land, he said that in thirty years, after making every allowance for the absorption of land in the neighbourhood of large towns for building purposes, the depreciation in the capital value of lands assessed to Schedule A of the income-tax had approximated very closely to the total of our national indebtedness. What that meant to the large class of owners, whose estates were burdened with settlements or mortgages imposed in better times, it needed no words of his to describe. There were, no doubt, many minor causes which help to account for this great decrease in the value of landed estate, but the chief factor was, undoubtedly, the reduced value of all agricultural produce. It might be a bold statement to commit oneself to, but he was of opinion that we have touched bottom, and that landowners and farmers, having been through the fire of adversity, are rapidly adapting themselves to the changed condition of affairs.

Imperial and Local Taxation.

Another very serious question affecting materially the value of landed estates was the increase in the burden of imperial and local taxation upon all kinds of property. As to local burdens, he said that the present system of valuation and assessment under the Rating Act of 1874 was most unequal and unsatisfactory, and he trusted the time was not far distant when a well-thought-out Government measure, on the lines of the majority report of the Royal Commission on Local Taxation, would be introduced, dealing with the whole question of the assessing of real estate for both imperial and local taxation. The rates and taxes on landed properties had gone up by leaps and bounds in the last twenty years. We have now, in addition to the poor rates, the County Council rates (embracing roads, bridges, lunacy, etc.), education rates, and other local burdens, such as water supply, sanitation, etc.

Main Roads and Motorists.

Sir John Hibbert, in an address to the County Council's Association in May last, gave the following figures showing the increased cost of the maintenance of main roads :—

	1894. £		1904. £
Bedfordshire	20,000	....	34,000
Essex	47,000	....	93,000
Glamorganshire	18,000	....	38,000
Gloucestershire	62,000	....	66,000
Hampshire	11,000	....	61,000
Lancashire	136,000	....	147,000
Norfolk	43,000	....	54,000
East Suffolk	9,000	....	14,000
Worcestershire	23,000	....	56,000
West Riding, Yorkshire	146,000	....	168,000

He (the speaker) thought it would be admitted on all hands that the main roads of the country were vastly improved, and were now maintained with some degree of uniformity in the several counties, but whether those who pay the immensely increased cost of this improvement reap a proportionate benefit from it was open to question. He suggested that a system should be initiated whereby the owners of motor-cars and motor bicycles should be made to contribute some quota towards the cost of maintaining main roads and bridges. The country towns and villages suffer, not inconsiderably, from the dust and smell created by these machines, and the general public who use the highways were subject to considerable risk from the frequent reckless driving of motors. These annoyances must, he apprehended, be borne patiently, but meanwhile, it was somewhat unfair that motorists should have the use of the roads practically free of charge, particularly as the great increase in the cost of their upkeep was largely due to the demand which had arisen for a condition of surface far superior in many cases to the needs of the district upon which the increased expenditure must fall. In his view, motors might fairly be taxed by means of licences to an extent which would provide the means of paying any cost of upkeep beyond that necessary for the normal traffic of the district; the sum thus obtained to be handed over to the local authorities in the same manner as other Government subventions.

Education.

The President also dealt with the subject of education, and in speaking of the advantages which he trusted would accrue to many young men joining their ranks from the scholarships which the Council had decided to offer to students at the Universities of Cambridge, Durham, and Wales, he said that, as a member of Cambridge University, it was his pleasing duty to inform them that the Vice-Chancellor, on behalf of the University authorities, had desired him to say how pleased they were that the scholarships would bring the University in touch with the Institution. The object that the Council had in view was to give a future surveyor the opportunity of studying at a University technical subjects which would be useful to him in following his profession. A year of his articles as a pupil might run concurrently with the last year of his University course, so that he would not be losing time in preparing for his future career, and surely the cultivation and development of the mind, which should be the result of three years well spent at the University, should enable the graduate to hold his own, if not to outstrip and pass his colleague, whose time had been given only to the acquisition of a purely technical knowledge of his profession.

Expenditure of Local Authorities.

As to the burdens upon real property, the following figures went to show the large and steady increase which had taken place in the expenditure of local authorities in England and Wales during the last thirty years :—

—	Average Amount of Rates raised per Head of Population.	Average Amount of Loans outstanding per Head of Population.
	£ s. d.	£ s. d.
1874-1875 ..	0 16 2	3 18 3
1879-1880 ..	0 17 6	5 7 11
1884-1885 ..	0 19 1	6 8 8
1889-1890 ..	0 19 6	6 19 8
1894-1895 ..	1 2 6	7 16 4
1899-1900 ..	1 5 7	9 4 4
1902-1903 ..	1 10 6	11 4 8

Average Rates raised per £ of Valuation.

	s.	d.	
1874-1875	3	3·8	per £ of Ratable Value.
1879-1880	3	3·8	
1884-1885	3	6·3	
1889-1900	3	8·2	
1894-1895	4	2·4	
1899-1900	4	11·8	per £ of Assessable Value, Agricultural Land assessed at one-half.
1902-1903	5	7·4	

Total Amount of Rates raised.

	£		£
1874-1875 ..	19,198,579	1894-1895 ..	33,855,283
1879-1880 ..	22,160,099	1899-1900 ..	40,734,219
1884-1885 ..	25,666,552	1902-1903 ..	50,328,412
1889-1890 ..	27,713,409		

These figures did not represent the total receipts, *e.g.*, in 1902-03 there were twelve and three-quarter millions obtained from local taxation duties and Government grants; thirty millions obtained from market tolls, gas and water undertakings, etc.; and thirty-five millions borrowed for water works, tramways, and other municipal undertakings. It was somewhat startling to find that the total rates, taking no account of the subventions, had risen nearly 200 per cent. in the past thirty years, and this brought home to them the importance of impressing their representatives on local councils with the necessity for the exercise of true economy in their expenditure.

Depopulation of Rural Districts.

A subject which at the present was causing considerable anxiety in the country, and upon which a great deal of discussion had taken place, was the depopulation of the rural districts and the influx of labourers and their families into the towns. This was a matter which seriously affected the future of the landed interest and the nation at large. That there was at present a serious lack of employment in urban districts was patent to all, and this might be calculated to have its effect in checking the exodus from the country of the more thoughtful-minded of the rural labourers. In 1899 the Board of Trade labour returns showed an average of 2·4 per cent. unemployed for the year. In 1894 the percentage was 6·5 per cent.; the present year, starting with about 7·6 per cent., was reduced in the summer months to 5·25 per cent., but this want of employment was almost sure to be intensified as the winter approaches, unless the stoppage of the recent war gave a very pronounced impetus to trade. At any rate, the building trade, which perhaps most seriously affected the ranks of the unemployed, was, he understood, in a very depressed condition, largely owing to the most prosperous centres of population being over-built during the good times.

The Unemployed.

The distress of last winter, and the shortness of work since, led to the Unemployed Workman's Act being passed last session. As originally introduced, it contained the new and socialistic proposal that the unemployed had the right to look to the ratepayer for work. This principle of the Bill was amended, but even now the thin end of the wedge was introduced, he understood, by allowing local authorities to acquire, out of the rates, land for the formation of labour colonies. The difficulty in dealing with the problem of the "unemployed," and the remedies to be adopted was one, the seriousness of which it was impossible to overestimate, and he rejoiced to see that the matter had been referred to a strong Royal Commission, whose inquiry would be pushed forward with all speed, and whose report would be waited with anxiety. If we were to retain the young intelligent labourer on the land we must provide him with a decent cottage, a fair-sized plot of ground (say, not less than twenty poles), and the fruit trees with which to plant it. But the impossibility of building decent cottages without an annual loss to the landowner was within the experience of every member of that Institution. If the money be borrowed of any of the improvement companies, it could not be obtained at less than 4½ per cent., including repayment of principal spread over forty years, and in addition there were the fees of the Board of Agriculture for passing and certifying the outlay.

Cheap Cottages Exhibition.

What the country needed, and what, in his inspecting the Cheap Cottage Exhibition at the Garden City, Letchworth, and the exhibition had no doubt accomplished some important results. It had called the attention of the public to the better housing of the labourer; it had proved that for an outlay of 150*l.*, under certain conditions, a cottage suitable for a labourer and his family could be built by a landowner. It had shown that restrictive by-laws must seriously impede the building of rural homes; and it had given examples of cottages built with various patent materials, and had introduced to their notice numerous modern and patent fittings. Many of the cottages were, however, in his opinion, quite unfitted for the homes of agricultural labourers, and he ventured to suggest that the life of some of these cheap cottages would not bear comparison with a pair of good substantial cottages in brick and slate, or brick and tile, costing from 350*l.* to 400*l.* the pair, including outbuildings. At the same time he recognised that the exhibition had done great good, and that there was much to be learnt from it.

What the country needed, and what, in his judgment, would be better in the interests of the nation, was not so much a cheap class of cottage as cheap money with which to erect decent cottages. The Small Holdings Departmental Committee, of which he had the honour to be a member, had had some very striking evidence before them on the matter of labourers' cottages, and this question would no doubt be dealt with in their report. Ireland, as was so often the case under recent legislation, was in a better position than the rest of Great Britain with regard to the provision of public money for the erection of labourers' cottages, for sect. 17 of the Labourers Act, 1883, empowers rural district councils to borrow money for the purposes of the Labourers Acts on the credit of the rates, and sect. 18 of the same Act enables the Board of Works, Ireland, to issue, with the sanction of the Treasury, the required loans. The period for repayment of the loans issued by the Board of Works and the rates of interest charged were fixed by Treasury minute, and had varied at different times since the passing of the first Labourers Act (1883).

Cottages Built in Ireland.

The following is the number of cottages built or being built in Ireland with public money up to March 31, 1905:—

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Under the Irish Land Act, 1903, imperial funds had been made available for the purchase of their holdings by private persons on still more favourable terms, so that the Irish occupier might now become owner of his farm on payment of 3¼ per cent. of its capital value for sixty-eight years.

Possibly such advantageous terms could not properly be expected on the security of a more perishable form of property, such as labourers' cottages, but, in view of the immense importance to the nation that the country population should be suitably housed, and not forced to migrate to centres already overcrowded, he would strongly urge legislation empowering English and Scotch landowners to borrow Government money for the erection of cottages on terms somewhat approximating those already granted to the Irish tenant under the 1903 Act.

Rural By-laws.

A kindred question was that of rural by-laws, which had recently been before the Institution and the general public. He did not propose to re-open the controversy, especially as the question had been dealt with under the Public Health Acts (Amendment) Bill of last session by a Select Committee of the House of Lords, whose report was published in the form of a short amended Bill of five clauses, the principal clause (2) of which was to exempt buildings sufficiently isolated from the operation of existing and future building by-laws. He could only state, from his own experience, that the rural by-laws at present in force were in many cases too arbitrary, and quite impracticable for dealing with building in country districts. We want a simple code of rural by-laws which should be fairly elastic and not oppressive, and he should prefer to see any disputes, which may arise under them in rural districts, referred to the Board of Agriculture and Fisheries, rather than to the Local Government Board.

Water Supply of Small Country Towns.

There was another subject which was of paramount importance to the country districts—that was, the water supply of small country towns and villages, which, in many places, had become an urgent question. In his judgment it was a matter of national importance, and one which must be dealt with without much delay, and he trusted the time was not far distant when they should see, either a Central Water Board in London, or the country divided up into large areas, each with a representative Water Board empowered to deal with all questions affecting the water supply of its own district, *e.g.*, the storage of water, the pollution of the rivers and streams, and the abstraction of water from a particular district by large cities situated at a considerable distance from the source of supply. Our present system, or rather, want of system, engendered waste, friction, and public loss and inconvenience.

London Building Acts Amendment Act.

The President then touched on the question of the food supply of the country, after which he referred to the London Building Acts (Amendment) Act, 1905. The Council opposed, in the Commons, the many drastic and undesirable provisions contained in the Bill as introduced, making it clear, however, that their opposition was disinterested, and actuated only by the desire to secure legislation which might prove of real value to the Metropolis. In both Lords and Commons considerable weight was evidently attached to the suggestions put forward by the Institution, and, while many improvements of lesser importance were effected, it was satisfactory to be able to report that, as it now stands, all requirements under the Act are subject to appeal to the Tribunal of Appeal, whether they apply to new or existing buildings. The Institution was much indebted to a small Committee of the Council, experts in this particular work, for the trouble and time they gave to drawing up objections and proposing amendments to the complicated clauses of the Bill. The heavy expenditure to which the Institution had been put in opposing the measure in its original crude and impracticable form had been abundantly justified, not only by the simplification of the work of the surveyor in dealing with the Act as it now stands, but still more so by the advantages which had been secured to the public in retaining for them an appeal from requirements which might, in some cases, have proved both drastic and uncalled-for.

In conclusion, the President congratulated the members upon the present successful position of the Institution.

On the motion of Mr. G. Langridge, seconded by Mr. Howard Martin, and supported by Mr. Morton, a hearty vote of thanks was accorded to the President for his address, and the President briefly replied.

The meeting then terminated.

The next meeting will be held on the 27th inst., when a discussion will take place on the paper read in May on the "Licensing Act of 1904."

THE ROYAL SANITARY INSTITUTE:

Sanitary Conditions in Factories.

A provincial session of the Royal Sanitary Institute was held in the Town Hall, Northampton, recently, when Colonel J. Lane Notter, chairman of the council, presided. Mr. Charles Travier Wright, H.M. Inspector of Factories, dealt with the "Health of the Workers Employed in the Boot and Shoe Industry," and Dr. Beattie, Medical Officer of Health for Northampton, gave a paper on "The Mortality Statistics of the Boot and Shoe Workers in Northampton." A discussion followed, initiated by Mr. W. Beale, chairman of the Northampton Boot and Shoe Manufacturers Association. Dealing with the temperature of clicking rooms, he pointed out that it was always more necessary to keep that department warmer than others, because the task of the workers was less laborious. In improving the conditions of health, workmen could play their part; the gradual disappearance of the habit of having lunch in factories—which had in the past meant dirty rooms—was a good sign. Mr. John Hill said that more fresh air was needed in the factories; he had never been in a factory where there had been anything like a complete system of ventilation. Possibly much of it was due to the working men themselves; there was a great divergence of opinion as to whether a draught was worse than a vitiated atmosphere. Dr. C. K. Millard, Medical Officer of Health for Leicester, gave a number of statistics relating to the experience of that borough. There was a much too great indifference to the vital importance of fresh air. At Leicester part of the isolation hospital was devoted to consumptive patients: he did not see why an authority should ignore consumption and pay such attention to the more trivial disease of scarlet fever. Alderman Poulton declared that in no factory was ventilation adequate, and the time was ripe for legislation empowering authorities to see that greater attention was devoted to the question. Mr. Frank White, Sanitary Inspector, Northampton, considered that the first thing to be done was to place the administration of the Factory Acts in the hands of the local authority. Dr. Roberts, Medical Officer of Birmingham, declared that if ventilation were improved cases of phthisis would decrease considerably. Under the present circumstances he thought that often an open window did more harm than a shut one. The Chairman, in concluding the discussion, referred to the emphasis laid upon the need of ventilation, which ought to be altogether distinct from lighting. He also suggested impervious floors for factories.

Rural Housing.

On Tuesday evening this week a discussion took place at the Institute premises, Parkes Museum, Margaret-street, W., on the subject of "Rural Housing," Colonel J. Lane Notter presiding.

Dr. John F. J. Sykes, M.D., D.Sc., said he had been asked, in conjunction with Mr. T. W. Aldwinckle, to visit the Exhibition of Cheap Cottages at the Garden City, Letchworth, and to write a paper introducing a discussion upon "Rural Housing." Mr. Aldwinckle had undertaken to deal with the matters of greatest interest to the architect and the builder, and he (the speaker) proposed to deal with the subject from the medical and sociological point of view. The increase of population at the last three census periods was found to be 14, 11, and 12 per cent., respectively. Yet, during the last thirty years, it had been estimated that the rural districts had lost one quarter of their population, while the towns have more than correspondingly gained.

As to the question of the return to the land, it was not necessary to make the city less attractive, but rather to make the country equally attractive. The first great attraction must be the possibility of earning a living wage.

In considering the erection of a modern rural cottage, the first and most important question to settle was—how much land will the cottage require? The answer to this question would depend upon whether there was (1) a water-supply system, (2) a sewerage system, and (3) a scavenging system. If the first did not exist the other two would not. If the first did exist, the second will sooner or later follow, because it was known that when the water main was substituted for the well, the quantity of water used was enormously increased. If the first and second exist, the water carriage of excreta would also exist, and if all solid refuse be burnt, there would only be the ashes to dispose of, whether a scavenging system exist or none. Assuming that neither of these systems are available, it would be necessary to provide each cottage with about a quarter of an acre of land. This would almost preclude the construction of cottages in terraces, because, assuming the frontage of a cottage plot to be 25 ft. in width, the plot would require to be 435 ft. long, a proportion of almost 18 to 1. Therefore, cottages to be erected under such conditions must be either detached or semi-detached, or in a group not exceeding three or four, and have about them, respectively, a quarter, a half, three-quarters, or a whole acre of land, to properly dispose of their liquid and solid refuse. In addition to this a well must be sunk, the rain water must be stored, an earth-closet must be used, to which the tenant must regularly attend, as well as to the disposal of the slop-waters, and to the disposal of the solid refuse. The amount of land required where all refuse had to be disposed of on the premises by the tenant himself, could not safely be reduced below the fifth of an acre. If all the refuse could be removed, then, instead of four or five cottages to the acre, the number could be increased to eight or ten, and still remain a garden village.

There were two ways of approaching the subject of necessary accommodation; the wrong way was to erect a structure and then fit human beings into it; the right and humane way was, firstly, to ascertain the requirements of human beings, and then to provide for them accordingly in the structure about to be erected. The most necessary requirements to be provided for in the human dwelling were: sitting, sleeping, food storage, cooking, warming, ablution, clothes washing, clothes drying, fuel storage, deposit of refuse, and excretion. The clothes would be dried in the garden of the cottage. The sanitary

convenience would be approached from the open or from an open lobby. The portable refuse receptacle and the fuel store would be situated also in an open lobby, or in a properly-protected space adjoining the cottage. Within the cottage proper would be the wash-house and scullery, the food store, the kitchen, and the sitting and sleeping-rooms. Here we came to the debatable question of the number of habitable rooms to be provided in a cottage. Amongst other objects of housing the working classes in the country as compared with the town was that of providing them with more dwelling room; therefore, the restricted accommodation of the densely-packed town must not be taken as a standard for the country. Further, the country cottage must be constructed to house a family, and not a single man and woman, or part of a family, or the smallest family, but rather the average sized, and even a large family. It would be said that if a cottage was so constructed as to house an average family, when occupied by a small family the inevitable lodger would be taken in. But when the family increased in size the lodger might easily find accommodation elsewhere, whereas the family would have much greater difficulty in moving, and if all cottages were constructed of the smaller size the difficulty would become an impossibility. It must be pictured that the family would sooner or later consist practically of three sexes, the boys, the girls, and the married couple, and this meant the use of three rooms as sleeping-rooms; if, therefore, there be only two bedrooms, the kitchen would inevitably be used as a sleeping-room, whereas, if there be three bedrooms and the family be small, one of the bedrooms might be used as a parlour. In any case, we might take as a standard that there should be in the cottage at least three habitable rooms—a kitchen and two bedrooms, and preferably four habitable rooms.

The materials available for construction were now numerous. The choice of materials had not only to suit the locality and to satisfy the demands of health, but also to have strict regard to cost, and cost was of two kinds—immediate and deferred. If to the original cost of material, putting together, erecting, and finishing, the after cost of maintenance and repair had to be added, it would often be found that the apparently cheapest material was, in the end, the most expensive. Therefore, durability made for ultimate cheapness. There was the further aspect that early dilapidation and decay might bring certain sections of the Public Health and Housing Acts upon the scene. Each locality must act upon its own judgment, the construction of a cottage must be based upon the materials available on the spot or obtainable from the shortest distance, with due regard to health and well-being.

If a cottage was situated in a hollow it might be more desirable to place the bedrooms in an upper story to obtain more airiness, and to avoid rising mists, but if situated on a hill one story would present less wall surface to the cold blasts of winter. An upper story would keep the rooms below of a more equable temperature, and in these rooms two-thirds of the twenty-four hours were spent divested of heavy out-door clothing, and unstimulated by out-door exercise; on the other hand, when the rooms were all on one ground-floor level some of the outer walls of the living-rooms were kept warmer by the rooms being placed at the side instead of overhead. The same effect of equability of temperature of some of the outer walls was obtained by party walls in semi-detached cottages, and groups of three or four cottages constructed in two stories.

In an isolated building the minimum of outer wall with the maximum of inclosed space was obtained by the circular form, to which there were obvious objections; the next minimum was the polygonal form, almost equally objectionable. And the next was the square form, which possessed many other advantages over other possible forms. Similarly there was less outer wall in a semi-detached than in a wholly detached cottage, and less still in a terraced cottage than in a semi-detached. Greater protection from extreme temperatures was afforded to the tops of rooms when the roof space of a pitched or pent roof was entirely inclosed by a ceiling than when it was only partly so inclosed, or there was no ceiling at all. In fact, the simplest and most effectual method of obtaining equability of temperature was to inclose a layer or body of still air, which was the best and cheapest non-conductor. In this manner an upper story made the temperature of a lower story more equable.

The situation of the fireplaces was another factor that influenced the temperature obtainable. In a detached cottage, if they were situated against the outer walls, a large part of the heat was dissipated and lost to the interior, whereas, if situated against inner walls, or centrally, more of the heat was retained in the building. This did not apply in the same manner to semi-detached or terraced cottages if the fireplaces were situated against party walls. It should be taken as a rule that every habitable room should have a window and a fireplace and flue for proper lighting and ventilation. In a bedroom a fireplace was indispensable for heating in case of sickness or nursing, and it should be regarded as an exception to permit a bedroom to be constructed without a fireplace, and then only when more than two bedrooms were provided. Of course, in the kitchen the fireplace was intended mainly for cooking, and should be provided with a proper range.

As to the position of the fireplace, window, and door in relation to each other in a room, if they were all situated on one side of a room the ventilation, and especially the through ventilation or perflation, would certainly suffer, and the heating or the lighting would suffer, and possibly both. This unusual arrangement was simply described by way of illustrating the importance of relative positions. The ideal condition was that the fireplace, window, and door should each be separately situated in one of the four walls. The more centrally in the wall the window was situated the better would be the distribution of light, and the more directly the fireplace faced the centre point of the room the better the heat would be distributed. This admitted of a fireplace in one of the angles, but the further the fireplace was away from the window and door the better the distribution of ventilation. The same applied to the door when situated near an angle of the room, and especially in relation to the window, as it was through door and window that perflation took place.

It should be fully realised that ventilation of an inhabited room was not sufficient to make it healthy; it also required to be perflated or through ventilated daily, in order forcibly to blow away the organic emanations that cling so persistently to surfaces and give the characteristic odour of humanity to rooms continuously inhabited.

In regard to the vertical situation of the window of a room, it was an axiom that the top of the window should reach as near as possible to the ceiling, so as to throw the light as far as possible into the room, and to ventilate to as high a point as possible. The latter possibility was dependent upon whether we ventilate by the lower, middle, or upper part of the window, and whether the window opening would be an inlet or an outlet. Window openings were nearly always inlets, particularly if there be a fireplace in the room. The objection to low windows was not so much on the ground of ventilation, as this could be otherwise provided for, but that they render a room dark and gloomy, and even lateral extension did not relieve the mental depression. They were more suited to semi-tropical climates, where sunshine and brilliant daylight were less welcome visitors than here. The height and width of the window were dependent upon whether the sash or guillotine window or the casement window be adopted. If the casement window be adopted, a louvred window above would overcome some of the objections to the casement. In an upper story the window might be situated at three different heights in relation to the room, that was, of three kinds: a wall window, a dormer window, and a skylight window. The skylight window was obviously in the least desirable form. With regard to the wall window, in a room half in the roof, with overhanging eaves, it was very gloomy and depressing, apart from the question of ventilation, and it was only possible to remedy this by adding a dormer window, and this would add to the expense of construction. It might be generally said that, where windows would serve for admitting the outer air without draught, other kinds of wall inlet ventilators were an unnecessary expense.

There was something also to be said about the third most prominent feature of a room—the prosaic door. Although the door should be so situated as to assist through ventilation, it was not desirable to multiply the number of doors to a room to the extent of rendering it almost uninhabitable, not only by reason of the numerous draughts created, but also by leaving so little room for furniture. In a large, active family in a moderate-sized room, with a window, fireplace, and three or four doors, it must be a puzzle to find a draughtless, warm, and undisturbed sitting-place in winter time. Again, in a small lobby or passage, the too close proximity of two or more doors awkwardly hung was very likely painfully to impress a person in more senses than one. From personal experience in one case, it was necessary to pass through a lobby into a room, and then back again and shut the outer door before being able to go upstairs.

And yet, again, an outer door that gave entrance directly into the kitchen and living-room was likely to admit such a winter's blast as to make the occupants shudder. An external porch or internal lobby to temper the wind was almost a necessity.

The height and the area of rooms were, within limits, debatable points. The object of increasing the height was to obtain more cubic capacity or air space and better ventilation, the object of diminishing the height was to save expense, and the practical course must be a compromise, somewhere between 7 ft. and 9 ft., say 8 ft. or thereabout, with a modification for the upper story over parts of the area to allow of the inclination of the roof. A good human working standard to take was that the ceiling should be at such a height that a tall man standing on the floor could not touch it with upstretched hand. The area of the kitchen and living room must be large enough to accommodate the whole family at the same time, at least 150 sq. ft., better still 200, and best of all 250; in case this might be thought excessive, they should remember that such inclosed areas, 8 ft. in height, would only provide sufficient cubic space for three, four, and five persons, respectively, at 400 cubic ft. per head, and even if diminished to 300 cubic ft. per head, for four, five, and six persons, omitting furniture.

The model by-laws for houses let in lodgings or tenements required a minimum of 300 cubic ft. per head in a room exclusively used for sleeping, and, if not used exclusively as a sleeping apartment, 400 ft. Some authorities had wisely adopted a single standard of 400 cubic ft. in all circumstances for dwelling purposes. The sufficiency of cubic space was dependent upon the means and the use of the means of ventilation, and the greater the cubic space the more readily the means of ventilation would be put into use. At the census and in housing schemes a standard of two persons per room was adopted. As the person constructing a cottage cannot guarantee that an intended bedroom shall never be used by a tenant for any other purpose he must estimate at 400 cubic ft. per head and two persons per room at the least; that was to say, he must provide at least 800 cubic ft. of space, this with 8 ft. in height would require 100 sq. ft. of floor space or thereabout. Increase of size, of course, meant increase of expense, and here, again, we must compromise. As a good working standard, the desirable area for a bedroom might be taken to be 100 sq. ft. or thereabout, and for a living room double this area. If only the occupants would learn and practise the virtues of the fresh-air treatment and additional bed clothing there would be little fault to find with the size of such bedrooms. Any considerable lowering of the minimum suggested for original construction, as, for instance, providing cubic space sufficient only for one person, would permanently hamper ventilation, leave no margin, and ultimately lead to overcrowding. A bed-recess in a sleeping-room was an unhealthy inclosed space in which to spend eight hours of slumber, unless possessing a window opening on the external air. On other grounds, in a family dwelling bed-recesses were undesirable. For similar reasons it was undesirable that one bedroom should be approached through another. Cutting off a slice of a bedroom to

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THE ROYAL SANITARY INSTITUTE:

Sanitary Conditions in Factories.

A provincial session of the Royal Sanitary Institute was held in the Town Hall, Northampton, recently, when Colonel J. Lane Notter, chairman of the council, presided. Mr. Charles Travier Wright, H.M. Inspector of Factories, dealt with the "Health of the Workers Employed in the Boot and Shoe Industry," and Dr. Beattie, Medical Officer of Health for Northampton, gave a paper on "The Mortality Statistics of the Boot and Shoe Workers in Northampton." A discussion followed, initiated by Mr. W. Beale, chairman of the Northampton Boot and Shoe Manufacturers Association. Dealing with the temperature of clicking rooms, he pointed out that it was always more necessary to keep that department warmer than others, because the task of the workers was less laborious. In improving the conditions of health, workmen could play their part; the gradual disappearance of the habit of having lunch in factories—which had in the past meant dirty rooms—was a good sign. Mr. John Hill said that more fresh air was needed in the factories; he had never been in a factory where there had been anything like a complete system of ventilation. Possibly much of it was due to the working men themselves; there was a great divergence of opinion as to whether a draught was worse than a vitiated atmosphere. Dr. C. K. Millard, Medical Officer of Health for Leicester, gave a number of statistics relating to the experience of that borough. There was a much too great indifference to the vital importance of fresh air. At Leicester part of the isolation hospital was devoted to consumptive patients: he did not see why an authority should ignore consumption and pay such attention to the more trivial disease of scarlet fever. Alderman Poulton declared that in no factory was ventilation adequate, and the time was ripe for legislation empowering authorities to see that greater attention was devoted to the question. Mr. Frank White, Sanitary Inspector, Northampton, considered that the first thing to be done was to place the administration of the Factory Acts in the hands of the local authority. Dr. Roberts, Medical Officer of Birmingham, declared that if ventilation were improved cases of phthisis would decrease considerably. Under the present circumstances he thought that often an open window did more harm than a shut one. The Chairman, in concluding the discussion, referred to the emphasis laid upon the need of ventilation, which ought to be altogether distinct from lighting. He also suggested impervious floors for factories.

Rural Housing.

On Tuesday evening this week a discussion took place at the Institute premises, Parkes Museum, Margaret-street, W., on the subject of "Rural Housing," Colonel J. Lane Notter presiding.

Dr. John F. J. Sykes, M.D., D.Sc., said he had been asked, in conjunction with Mr. T. W. Aldwinckle, to visit the Exhibition of Cheap Cottages at the Garden City, Letchworth, and to write a paper introducing a discussion upon "Rural Housing." Mr. Aldwinckle had undertaken to deal with the matters of greatest interest to the architect and the builder, and he (the speaker) proposed to deal with the subject from the medical and sociological point of view. The increase of population at the last three census periods was found to be 14, 11, and 12 per cent., respectively. Yet, during the last thirty years, it had been estimated that the rural districts had lost one quarter of their population, while the towns have more than correspondingly gained.

As to the question of the return to the land, it was not necessary to make the city less attractive, but rather to make the country equally attractive. The first great attraction must be the possibility of earning a living wage.

In considering the erection of a modern rural cottage, the first and most important question to settle was—how much land will the cottage require? The answer to this question would depend upon whether there was (1) a water-supply system, (2) a sewerage system, and (3) a scavenging system. If the first did not exist the other two would not. If the first did exist, the second will sooner or later follow, because it was known that when the water main was substituted for the well, the quantity of water used was enormously increased. If the first and second exist, the water carriage of excreta would also exist, and if all solid refuse be burnt, there would only be the ashes to dispose of, whether a scavenging system exist or none. Assuming that neither of these systems are available, it would be necessary to provide each cottage with about a quarter of an acre of land. This would almost preclude the construction of cottages in terraces, because, assuming the frontage of a cottage plot to be 25 ft. in width, the plot would require to be 435 ft. long, a proportion of almost 18 to 1. Therefore, cottages to be erected under such conditions must be either detached or semi-detached, or in a group not exceeding three or four, and have about them, respectively, a quarter, a half, three-quarters, or a whole acre of land, to properly dispose of their liquid and solid refuse. In addition to this a well must be sunk, the rain water must be stored, an earth-closet must be used, to which the tenant must regularly attend, as well as to the disposal of the slop-waters, and to the disposal of the solid refuse. The amount of land required where all refuse had to be disposed of on the premises by the tenant himself, could not safely be reduced below the fifth of an acre. If all the refuse could be removed, then, instead of four or five cottages to the acre, the number could be increased to eight or ten, and still remain a garden village.

There were two ways of approaching the subject of necessary accommodation; the wrong way was to erect a structure and then fit human beings into it; the right and humane way was, firstly, to ascertain the requirements of human beings, and then to provide for them accordingly in the structure about to be erected. The most necessary requirements to be provided for in the human dwelling were: sitting, sleeping, food storage, cooking, warming, ablution, clothes washing, clothes drying, fuel storage, deposit of refuse, and excretion. The clothes would be dried in the garden of the cottage. The sanitary

convenience would be approached from the open or from an open lobby. The portable refuse receptacle and the fuel store would be situated also in an open lobby, or in a properly-protected space adjoining the cottage. Within the cottage proper would be the wash-house and scullery, the food store, the kitchen, and the sitting and sleeping-rooms. Here we came to the debatable question of the number of habitable rooms to be provided in a cottage. Amongst other objects of housing the working classes in the country as compared with the town was that of providing them with more dwelling room; therefore, the restricted accommodation of the densely-packed town must not be taken as a standard for the country. Further, the country cottage must be constructed to house a family, and not a single man and woman, or part of a family, or the smallest family, but rather the average sized, and even a large family. It would be said that if a cottage was so constructed as to house an average family, when occupied by a small family the inevitable lodger would be taken in. But when the family increased in size the lodger might easily find accommodation elsewhere, whereas the family would have much greater difficulty in moving, and if all cottages were constructed of the smaller size the difficulty would become an impossibility. It must be pictured that the family would sooner or later consist practically of three sexes, the boys, the girls, and the married couple, and this meant the use of three rooms as sleeping-rooms; if, therefore, there be only two bedrooms, the kitchen would inevitably be used as a sleeping-room, whereas, if there be three bedrooms and the family be small, one of the bedrooms might be used as a parlour. In any case, we might take as a standard that there should be in the cottage at least three habitable rooms—a kitchen and two bedrooms, and preferably four habitable rooms.

The materials available for construction were now numerous. The choice of materials had not only to suit the locality and to satisfy the demands of health, but also to have strict regard to cost, and cost was of two kinds—immediate and deferred. If to the original cost of material, putting together, erecting, and finishing, the after cost of maintenance and repair had to be added, it would often be found that the apparently cheapest material was, in the end, the most expensive. Therefore, durability made for ultimate cheapness. There was the further aspect that early dilapidation and decay might bring certain sections of the Public Health and Housing Acts upon the scene. Each locality must act upon its own judgment, the construction of a cottage must be based upon the materials available on the spot or obtainable from the shortest distance, with due regard to health and well-being.

If a cottage was situated in a hollow it might be more desirable to place the bedrooms in an upper story to obtain more airiness, and to avoid rising mists, but if situated on a hill one story would present less wall surface to the cold blasts of winter. An upper story would keep the rooms below of a more equable temperature, and in these rooms two-thirds of the twenty-four hours were spent divested of heavy out-door clothing, and unstimulated by out-door exercise; on the other hand, when the rooms were all on one ground-floor level some of the outer walls of the living-rooms were kept warmer by the rooms being placed at the side instead of overhead. The same effect of equability of temperature of some of the outer walls was obtained by party walls in semi-detached cottages, and groups of three or four cottages constructed in two stories.

In an isolated building the minimum of outer wall with the maximum of inclosed space was obtained by the circular form, to which there were obvious objections; the next minimum was the polygonal form, almost equally objectionable. And the next was the square form, which possessed many other advantages over other possible forms. Similarly there was less outer wall in a semi-detached than in a wholly detached cottage, and less still in a terraced cottage than in a semi-detached. Greater protection from extreme temperatures was afforded to the tops of rooms when the roof space of a pitched or pent roof was entirely inclosed by a ceiling than when it was only partly so inclosed, or there was no ceiling at all. In fact, the simplest and most effectual method of obtaining equability of temperature was to inclose a layer or body of still air, which was the best and cheapest non-conductor. In this manner an upper story made the temperature of a lower story more equable.

The situation of the fireplaces was another factor that influenced the temperature obtainable. In a detached cottage, if they were situated against the outer walls, a large part of the heat was dissipated and lost to the interior, whereas, if situated against inner walls, or centrally, more of the heat was retained in the building. This did not apply in the same manner to semi-detached or terraced cottages if the fireplaces were situated against party walls. It should be taken as a rule that every habitable room should have a window and a fireplace and flue for proper lighting and ventilation. In a bedroom a fireplace was indispensable for heating in case of sickness or nursing, and it should be regarded as an exception to permit a bedroom to be constructed without a fireplace, and then only when more than two bedrooms were provided. Of course, in the kitchen the fireplace was intended mainly for cooking, and should be provided with a proper range.

As to the position of the fireplace, window, and door in relation to each other in a room, if they were all situated on one side of a room the ventilation, and especially the through ventilation or perflation, would certainly suffer, and the heating or the lighting would suffer, and possibly both. This unusual arrangement was simply described by way of illustrating the importance of relative positions. The ideal condition was that the fireplace, window, and door should each be separately situated in one of the four walls. The more centrally in the wall the window was situated the better would be the distribution of light, and the more directly the fireplace faced the centre point of the room the better the heat would be distributed. This admitted of a fireplace in one of the angles, but the further the fireplace was away from the window and door the better the distribution of ventilation. The same applied to the door when situated near an angle of the room, and especially in relation to the window, as it was through door and window that perflation took place.

It should be fully realised that ventilation of an inhabited room was not sufficient to make it healthy; it also required to be perflated or through ventilated daily, in order forcibly to blow away the organic emanations that cling so persistently to surfaces and give the characteristic odour of humanity to rooms continuously inhabited.

In regard to the vertical situation of the window of a room, it was an axiom that the top of the window should reach as near as possible to the ceiling, so as to throw the light as far as possible into the room, and to ventilate to as high a point as possible. The latter possibility was dependent upon whether we ventilate by the lower, middle, or upper part of the window, and whether the window opening would be an inlet or an outlet. Window openings were nearly always inlets, particularly if there be a fireplace in the room. The objection to low windows was not so much on the ground of ventilation, as this could be otherwise provided for, but that they render a room dark and gloomy, and even lateral extension did not relieve the mental depression. They were more suited to semi-tropical climates, where sunshine and brilliant daylight were less welcome visitors than here. The height and width of the window were dependent upon whether the sash or guillotine window or the casement window be adopted. If the casement window be adopted, a louvred window above would overcome some of the objections to the casement. In an upper story the window might be situated at three different heights in relation to the room, that was, of three kinds: a wall window, a dormer window, and a skylight window. The skylight window was obviously in the least desirable form. With regard to the wall window, in a room half in the roof, with overhanging eaves, it was very gloomy and depressing, apart from the question of ventilation, and it was only possible to remedy this by adding a dormer window, and this would add to the expense of construction. It might be generally said that, where windows would serve for admitting the outer air without draught, other kinds of wall inlet ventilators were an unnecessary expense.

There was something also to be said about the third most prominent feature of a room—the prosaic door. Although the door should be so situated as to assist through ventilation, it was not desirable to multiply the number of doors to a room to the extent of rendering it almost uninhabitable, not only by reason of the numerous draughts created, but also by leaving so little room for furniture. In a large, active family in a moderate-sized room, with a window, fireplace, and three or four doors, it must be a puzzle to find a draughtless, warm, and undisturbed sitting-place in winter time. Again, in a small lobby or passage, the too close proximity of two or more doors awkwardly hung was very likely painfully to impress a person in more senses than one. From personal experience in one case, it was necessary to pass through a lobby into a room, and then back again and shut the outer door before being able to go upstairs.

And yet, again, an outer door that gave entrance directly into the kitchen and living-room was likely to admit such a winter's blast as to make the occupants shudder. An external porch or internal lobby to temper the wind was almost a necessity.

The height and the area of rooms were, within limits, debatable points. The object of increasing the height was to obtain more cubic capacity or air space and better ventilation, the object of diminishing the height was to save expense, and the practical course must be a compromise, somewhere between 7 ft. and 9 ft., say 8 ft. or thereabout, with a modification for the upper story over parts of the area to allow of the inclination of the roof. A good human working standard to take was that the ceiling should be at such a height that a tall man standing on the floor could not touch it with upstretched hand. The area of the kitchen and living room must be large enough to accommodate the whole family at the same time, at least 150 sq. ft., better still 200, and best of all 250; in case this might be thought excessive, they should remember that such inclosed areas, 8 ft. in height, would only provide sufficient cubic space for three, four, and five persons, respectively, at 400 cubic ft. per head, and even if diminished to 300 cubic ft. per head, for four, five, and six persons, omitting furniture.

The model by-laws for houses let in lodgings or tenements required a minimum of 300 cubic ft. per head in a room exclusively used for sleeping, and, if not used exclusively as a sleeping apartment, 400 ft. Some authorities had wisely adopted a single standard of 400 cubic ft. in all circumstances for dwelling purposes. The sufficiency of cubic space was dependent upon the means and the use of the means of ventilation, and the greater the cubic space the more readily the means of ventilation would be put into use. At the census and in housing schemes a standard of two persons per room was adopted. As the person constructing a cottage cannot guarantee that an intended bedroom shall never be used by a tenant for any other purpose he must estimate at 400 cubic ft. per head and two persons per room at the least; that was to say, he must provide at least 800 cubic ft. of space, this with 8 ft. in height would require 100 sq. ft. of floor space or thereabout. Increase of size, of course, meant increase of expense, and here, again, we must compromise. As a good working standard, the desirable area for a bedroom might be taken to be 100 sq. ft. or thereabout, and for a living room double this area. If only the occupants would learn and practise the virtues of the fresh-air treatment and additional bed clothing there would be little fault to find with the size of such bedrooms. Any considerable lowering of the minimum suggested for original construction, as, for instance, providing cubic space sufficient only for one person, would permanently hamper ventilation, leave no margin, and ultimately lead to overcrowding. A bed-recess in a sleeping-room was an unhealthy inclosed space in which to spend eight hours of slumber, unless possessing a window opening on the external air. On other grounds, in a family dwelling bed-recesses were undesirable. For similar reasons it was undesirable that one bedroom should be approached through another. Cutting off a slice of a bedroom to

form a passage-way to one or more bedrooms beyond showed a clumsiness of design, but where a passage, corridor, or lobby was essential, it must be sufficiently lighted and ventilated.

The food-store, larder, or pantry, should face as near north as possible, have hard impervious surfaces, have a permanent direct opening into the external air, and be carefully protected against the entrance of flies from without by closing wire netting, and from within by an accurately fitting door. A water-butt served two very useful purposes: by intercepting the rain-water it provided soft-water for washing purposes, and where there was no sewerage system, diminished the amount of liquid to be disposed of upon the garden surface in wet weather.

When the wash-house or wash-house and scullery was situated in the main building the steam from the copper during clothes washing should be excluded from the house by a door, and provision should be made for its escape from the upper part of the wash-house, either through the upper part of a window or by a special opening. The provision of a special bath and hot-water system was a considerable additional expense, and a large quantity of water could be heated in a copper. A portable slipper, or hip bath, or the homely tub had this advantage that it could be moved about, and a hot bath could be taken in either of the bedrooms in greater privacy and under more comfortable conditions than in a scullery or wash-house, the carriage of water being the only trouble. The sanitary convenience should not only be approached from the open or an open lobby and be sufficiently lighted and ventilated, but it should also not have any possible aerial communication with the food-store.

In dealing with the question of cost, Dr. Sykes said that the most important question that awaits an answer, or series of answers, was, in regard to each particular cottage plan—What was the relative cost of erection and cost of maintenance of the same cottage repeated and constructed in different materials? There was a further question of some importance, namely—For what amount can the cottage be mortgaged? This would probably be about the fairest test of true relative value.

In regard to rural building by-laws, he said that a return issued by the Local Government Board showed that in England and Wales there were 668 rural districts, in 246 of which there were no by-laws at all for the control of new buildings. In 106 districts and in parts of thirty-two districts there were by-laws based on the rural model; in 169 districts and in parts of 114 districts there were by-laws based on the urban model. If by-laws and building acts were based more upon the zone system, as in Germany, and varied more according to the proximity and height of houses, upon a sliding scale, many of the present difficulties would be overcome. The hopelessness of framing general by-laws to suit the seasons caused them to be framed on the winter model. But one was tempted to ask whether it was not possible to relax or set aside the by-laws for temporary dwellings occupied only during the summer, just as relaxations or exemptions were allowed for temporary buildings. The principal by-law of the urban and old rural model code to which exception had been taken was that which required "walls to be constructed of good bricks, stone, or other hard and incombustible materials." Nevertheless, it was a remarkable fact that of the cottages at the Letchworth Exhibition about 60 per cent. were of "brick" and about 10 per cent. of "other hard and incombustible materials." The reason obviously was that this made for durability, as well as prevention of fire. Such durable materials were not only proof against fire, but also against vermin and other inconveniences. Special provisions against fire were quite unnecessary for detached buildings if only one story in height, or even of two stories if there be an easy drop from the windows. Instant escape was necessary from an upper floor constructed of wood, or lined with wood, as the wood in time becomes so dry that it burns like "wild fire"; no time was left to think, and only enough to drop to safety.

In speaking of the exhibition of cottages at Letchworth, he said that there was a catalogue classification of temporary buildings and permanent structures, but in the latter were to be found some structures no less temporary than those in the former. It must be admitted that it was difficult to draw a sharp line, as it was dependent upon durability of materials and combination, and the test of time had yet to be applied. Still, classification was possible under the heads of brick and other incombustible materials, and it was remarkable that of the cottages about 60 per cent. were in the former and 10 or more per cent. in the latter category, so that over 70 per cent. conform in this respect to the urban by-law as to main walls. Ten per cent. or more were wooden cottages entirely or mainly, and the rest were of various combinations and composite materials. The half-dozen or so of entirely wooden cottages gave an excellent demonstration of the modern style of cottage in this material. Some of the wooden or partly wooden cottages were not only fit for inland use, but also should make admirable fishermen's cottages on the sea coast in the gaps protected from wind and driving rain.

It would be valuable to know the resistance and durability or life of building materials, especially for outer walls and roofs, and the Royal Sanitary Institute could not undertake a more useful task than in endeavouring, by tests and trials, to ascertain the relative merits of the different materials in the market, not only from the point of view of life of the substances, but also of the health of those who might have to live surrounded by them. It was comforting to see that in about one-third of the cottages the fireplaces and flues were more or less centrally grouped, and in about another third that they were placed in inner walls or party walls, or mainly so. In the remaining approximate third they were uncompromisingly in or against outer walls. He was struck by the small consideration in some cases paid to warmth—thin walls, thin roofs, large window spaces, and many doors to the rooms, absence of entrance-lobby or protected porch. In some cottages the staircases were not only dangerous on account of the absence of hand-rail to the straight run from top to bottom, but were also appalling in their steepness.

[Our report will be concluded next week.]

THE "QUIETER LONDON" MOVEMENT.

AT a meeting of the Street Noise Abatement Committee, held at 1, Finsbury-circus, on Saturday, it was stated that the Society intends to promote a Bill in Parliament next session which will give the police power to suppress organ-grinding and street cries. The County Council by-laws have proved quite ineffectual for the protection of the public, as the organ-grinder can take refuge under the clause that makes his removal subject to reasonable objection. In these cases the police have no power to prosecute, but the householder who objects must himself summon the offender, and few people care to spend the time necessary for putting the law into operation.

The new Bill will give the police power to summon the grinder and street crier, and will, in fact, make their action a common nuisance, to be as much amenable to the law as obstructing the traffic. It is hoped that the Bill will be considered uncontentious, and thus pass into law with the least possible delay. In the course of the meeting it was stated that "No-organ" notices were now placed up in about 200 localities, and that considerable relief from the unwelcome noise had thus been effected. Applications for further similar notices were being received faster than they could be dealt with by the Association, and it was thought probable that at least a thousand notices would be required for the residential districts of the Metropolis.*

INGRAM HOUSE, STOCKWELL.—In the description of this building in our last issue we state that the wrought-iron balustrade and wrought-copper outside lamps were made by Messrs. Gitten & Co. It should have been "Gittins, Craftsmen, Ltd.," of Birmingham. The mistake was not ours.

*On this subject, see our Note on page 522.

ARCHITECTURAL SOCIETIES.

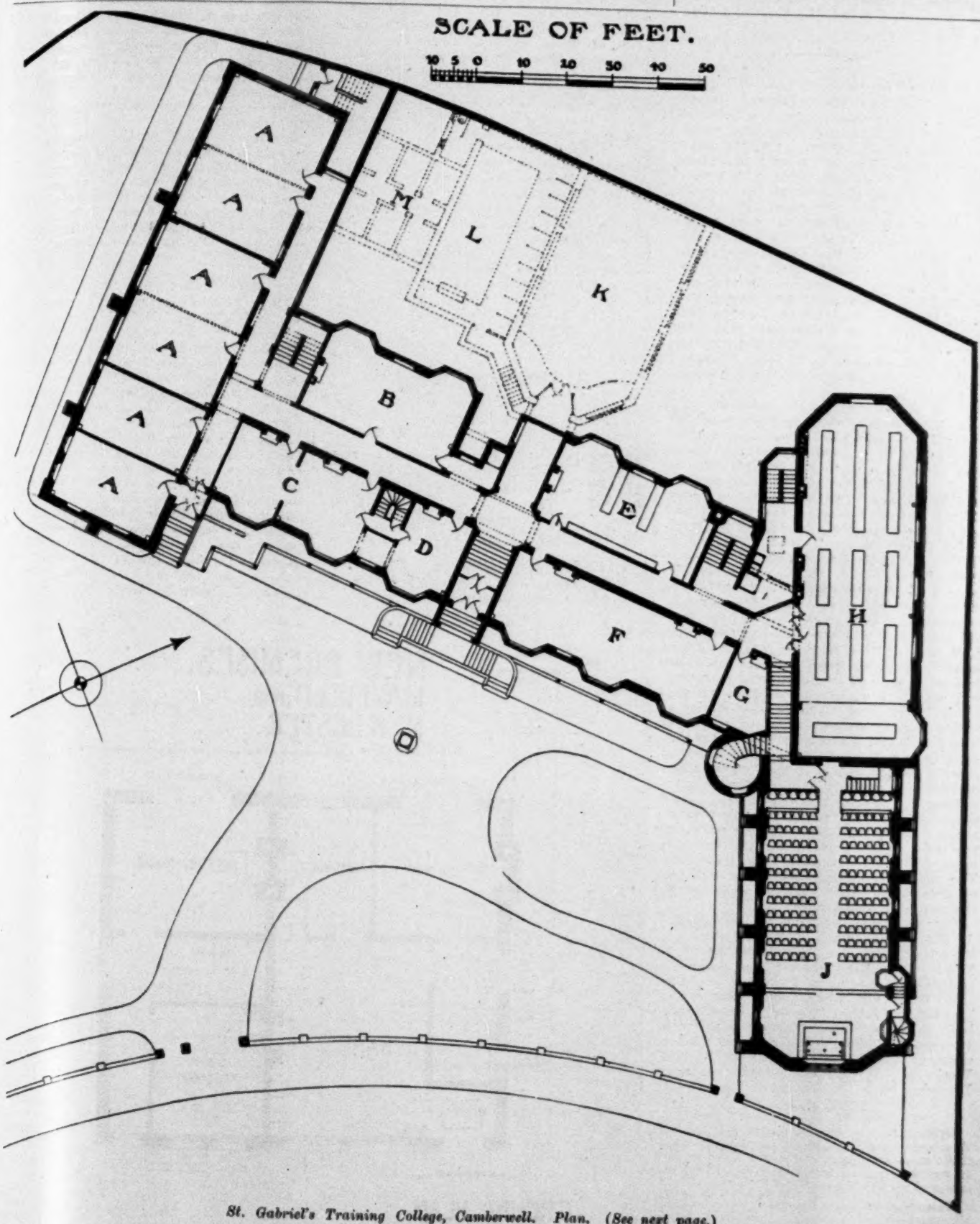
LIVERPOOL ARCHITECTURAL SOCIETY.—On the 6th inst. Mr. A. Needham Wilson lectured before the Liverpool Architectural Society on the subject of "Sketch Plans and Working Drawings." He advised young architects, while keeping in sight the study of the beautiful, to guard against the temptation to overdo the idealism or to ignore structural problems. As a body architects should take a far larger share in the training of workmen, so that technical instruction might be certain to pursue a right course. Many public buildings and most railway-stations offered flagrant examples of current evils in construction. Mr. Wilson lectured on the same subject before the Architectural Association in London, and a full report will be found in our issue for April 1, 1905.

MANCHESTER SOCIETY OF ARCHITECTS.—The third meeting of the students of the Manchester Society of Architects was held last Tuesday evening, and presided over by Professor Capper, of the Manchester University, who, after a few preliminary remarks, called upon Mr. B. Pendleton to give a lecture entitled "Two Great Cistercian Abbeys of Yorkshire." The lecture was illustrated by sketches and photographs of Fountains and Kirkstall Abbeys, with Furness, Tintern, and several smaller abbeys for comparison. The lecturer dealt very minutely with the history of the Monkish orders, in order to show the coherence of the buildings with their requirements, and the development of the typical plan which they adopted.—The following awards in the students' competitions were announced at a recent meeting of the Society:—Mr. Beaumont's prize for drawings for the sketch-book, J. Cocker; special prize, F. Dyer. Society's prizes for sketches: 1, J. T. Halliday; 2, J. Cocker. Society's prizes for measured drawings: 1, J. H. Goldsmith; 2, F. Hearne; special third prize, J. T. W. Brooke. Prizes for best work done in the School of Art architecture classes (including examination results): Second and third year students, S. Birkett and G. H. Goldsmith (equal). First year students: 1, J. H. Roberts; 2, D. Sherlock.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The opening meeting of the session of the Edinburgh Architectural Association was held on the 8th inst. in the Association Rooms, 117, George-street, Mr. H. O. Tarbolton, President of the Association, presiding. After the formal business Mr. John Keppie, F.R.I.B.A., Glasgow, read a paper on "Moorish Architecture in Spain." The paper was written after a visit several years ago to Spain, and Mr. Keppie described some of the principal buildings in Madrid, Cordova, Granada, and Seville. Moorish architecture, he said, referring more especially to the Alhambra, spoke to the senses rather than to the mind; it pointed to voluptuousness rather than to thought. It resembled a brilliant charm, a caprice of the genii, who might be imagined to have disported themselves in the network of stone, in the delicate openwork, light fringes, embroideries, etc. The Alhambra, he added, was an Oriental poem. The lecture was illustrated by lantern slides.

ARCHITECTURAL ASSOCIATION OF IRELAND.—The annual report of the Committee for the session 1904-1905 states that the last session has been one of the best since the Association was re-established in 1896. The class attendances were in most cases far above the average, and the enthusiasm shown by the members was strongly evidenced by the work in the classes, and the number of drawings submitted for the class prizes. Eighteen new members have joined during the year, and five have resigned, leaving a total increase of thirteen. One associate member was elected under the new rules, bringing the membership up to 138. It will thus be seen that the increase of subscription decided on last year has had anything but a deteriorative effect. The Committee, realising that the Association had out-grown the quarters so kindly provided, free of rent, in former years by Sir Thomas Drew, decided to take a house in 15, South Frederick-lane, which formed part of the premises No. 13, Molesworth-street. These premises comprise a large lecture-hall and two rooms on the ground floor, which may eventually be turned into a museum, and four rooms on the upper

floor, now in use as a library, reading-room, committee-room, etc. The rental of these premises was rather heavier than the Committee would have wished, but they appeared so adaptable that negotiations were at once completed, and the rooms have been in constant use during the session. The liability thus incurred has been partly met by the donation of sixty guineas by the past-President of the R.I.A.I., Mr. Geo. Ashlin. A successful series of visits were paid during the spring to the following buildings in progress:—The "Iveagh" House, Dublin; the Northern Bank; the Abbey Theatre; the fire brigade station, Ballsbridge; the disinfecting station, South Lotts-road; the new store at Messrs. Guinness's, James's-street; and the Surgical Home, Lr. Mount-street. The competition for the numerous and valuable prizes offered was again disappointing. The President's and Vice-President's prizes produced only one competitor each; the Travelling Studentship two; and the Institute Prize three. The drawings, designs, and models, were of considerable merit, and indicated an improvement in the standard of draughtsmanship and design of the younger members. The following is the list of prize winners:—Architectural Association of Ireland Travelling Studentship, Mr. H. T. O'Rourke; Architectural Association of Ireland Travelling Studentship, special prize, presented by Mr. A. E. Murray, Mr. D. G. Boucher; the Institute Prize, Mr. H. G. Leask; President's Prize, Mr. A. W. Reid; Vice-President's Prize, Mr. W. Stainer. Architectural History Class, 1st, Mr. H. J. Lyons; 2nd, Mr. J. W. Beckett; special, Mr. T. F. Strahan. Building Construction Class, 1st., Mr. T. F. Strahan; 2nd, Mr. P. J. Munden. Class of Design, 1st, Mr. A. W. Reid; 2nd, Mr. J. W. Beckett. The annual excursion was held at Galway, where Mr. Tighe, one of their members, acted as guide to the interesting architectural features of the locality. The smoking concert was held as usual at the Grosvenor Hotel, but, owing to financial reasons, the Committee decided not to hold the annual dinner this session. The report records with regret that no steps have as yet been taken by the senior body to establish an



St. Gabriel's Training College, Camberwell. Plan. *(See next page.)*

AA—Classrooms.
B—Lecturers' common room.
C—Principal's suite.
D—Principal's office.
E—Library.
F—Students' common room.
G—Secretary and muniment-room.
H—Dining hall.
J—Chapel.
K—Gymnasium (and examination-room over).
L—Swimming bath.
M—Music-rooms.

Irish examination for qualification as a member of the R.I.A.I., and which they had hoped would have the effect of aiding the Association in its educational work. So many points had, however, been raised in connexion with the Registration Bill at present under consideration by a committee in England, that it was fully recognised that any alteration of the existing system in Ireland at the present moment might lead to unsatisfactory results.—The following prizes are offered for competition during the ensuing session:—Architectural Association of Ireland Travelling Studentship, 10*l.*; the Institute Prize, 10*l.* 10*s.*; Mr. P. J. Lynch's Prize, 5*l.* 5*s.*; the Downes' Bronze Medal; the Vice-President's Prize, 2*l.* 2*s.*; Architectural History Class, 1st, 2*l.*; 2nd, 1*l.*; Building Construction Class, 1st, 2*l.*; 2nd, 1*l.*; Class of Design, 1st, 2*l.*; 2nd, 1*l.*

ENGINEERING SOCIETIES.

INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting on Tuesday, November 14, Sir Alexander R. Binnie, President, in the chair, the paper read was "On Waterways in Great Britain," by Mr. John Arthur Saner, M.Inst.C.E. The paper began with a short historical sketch, giving dates of inception of some of the earlier navigations, and also describing such improvements as have been made in recent years. The author then went on to discuss the comparative advantages of waterways and railways, and their main differences of construction and use; pointing out where up-to-date canals were owned by independent companies they could in many cases show a reasonable profit, but where the railway companies owned them the profits appeared to be much less. In regard to the difficulty of working through traffic on account of variations in gauge, he showed how, if a standard gauge could be fixed upon, the means of communication would be vastly improved. The question of a standard gauge was discussed, and the author gave his opinion as to the best standard to adopt, in view of the existing arrangements in this country. In this connexion longitudinal sections, showing the mileage and heights above sea level, were given of the following main routes:—1, Hull to Liverpool; 2, Liverpool to Midland district; 3, Bristol to Midland district; 4, Hull to Midland district; 5, London to Midland district. There were also tables showing the necessary measures for, and giving the probable cost of, improving the connexions between the main ports and the Midland district. Water supply and towing were then considered, the various means now available being described, and reasons for and against different proposals being given. The relative merits of railways and waterways as to speed of travel were also discussed. The author then dealt briefly with the question of tolls and charges and the cost of upkeep, showing how difficult it was to compare the costs of different systems. Finally the paper described the best routes for ship canals across country, and concluded by discussing the different ways of raising the necessary money for reconstructing the waterways. The paper was accompanied by a large map of waterways, with reference tables, giving the navigable dimensions.

THE JUNIOR INSTITUTION OF ENGINEERS.—As the annual dinner of the Institution of Electrical Engineers has been fixed for Friday, December 8, it has been decided to postpone the reading of the paper on "Electrical Mains for Power Transmission Work," by Professor John T. Morris, M.I.E.E. (member), to the following Friday, December 15. In connexion with the paper a visit has been arranged to Messrs. Johnson & Phillips's Works at Charlton on Saturday morning, December 16.

MEMORIAL PULPIT, ST. GEORGE'S CHURCH, WORCESTER.—An oak pulpit has been placed in this church in memory of the late Dr. Sheppard. It was designed by Mr. A. H. Parker, and was executed by Mr. Haughton.

MEMORIAL SCREENS, ST. MARY MAGDALENE'S, MUNSTER-SQUARE, LONDON.—It has been decided to proceed with the erection of side screens in the north and south aisles of this church, as a memorial to the late Rev. W. H. H. Jervois. Mr. J. T. Micklethwaite, F.S.A., is preparing the plans.

Fifty Years Ago.

FROM THE *Builder* OF NOVEMBER 17, 1855.

He was of opinion, however, that Gothic architecture was too fashionable in England; and he sincerely regretted it—partly, perhaps, because of early teaching, and perhaps because his recent visit to Italy had revived his old impressions. Classical architecture appeared to be almost forgotten by English students; and he had been exceedingly struck by the fact that in a clever and well-written book, by an architect, on "The Gothic Architecture of the North of Italy," classical architecture was ignored and despised. This was a sign of the times which, as an architect, he was bound sincerely to regret. At one time English architects had been mad for Grecian architecture; but now the great works of Wren, Palladio, Inigo Jones, and the great architects of Italy were neglected; and one gentleman (Mr. Ruskin) admired to the very echo the Ducal Palace at Venice—a feeling which he regretted should exist among the architects of England. The writer of the book to which he referred had engraved, as a beautiful example, a window in the very angle of the main story of one of the principal palaces: to effect this the angle was cut through, and the upper part, of very heavy architecture, was supported on corbels only a few inches thick. He had himself been taught that the weight should be carried consistently and honestly; and so violent a departure from that rule as this, and many other instances he could quote in Venice, he could not consider consistent with architectural truth.—*Presidential address at Institute of Architects.*

Illustrations.

DESIGN FOR DECORATION OF A STAIRCASE IN A TOWN HOUSE.

THE illustration represents some sgraffito work that is to be carried out in a town house in London.

The artist is Chevalier Cesare Formilli, and the drawing was exhibited at the Royal Academy this year.

ST. GABRIEL'S TRAINING COLLEGE.

THIS college for pupil-teachers for the Canterbury and Rochester Dioceses has a fine situation facing Myatts Fields, in Camberwell.

The main block, which was planned for eighty residential and eighty non-residential students, was opened on October 9, 1900, at a cost of 32,933*l.*

The chapel, which was subsequently built at a cost of 5,280*l.*, was dedicated on May 9, 1903.

The swimming bath, lecture theatre, and gymnasium and music-rooms, shown on the plan and forming part of the original scheme, have not yet been built.

The circular turret in the angle between the chapel and the main block is intended in the future to be carried up to a greater height for a clock.

The materials used externally are Messrs. Thomas Lawrence & Sons' red facing bricks, laid in alternate broad bands of two slightly different shades, and a sparing use of Portland stone. The projecting bay windows are rough casted, and have copper roofs, the main roofs being covered with green Westmoreland slates.

The heating is by low-pressure hot water and fireplaces.

Inside the chapel at the entrance end is an oak screen with stalls in front and a gallery above for the organ. There is also a carved oak pulpit with a stone base. The floor and steps of the sacrarium are of marble.

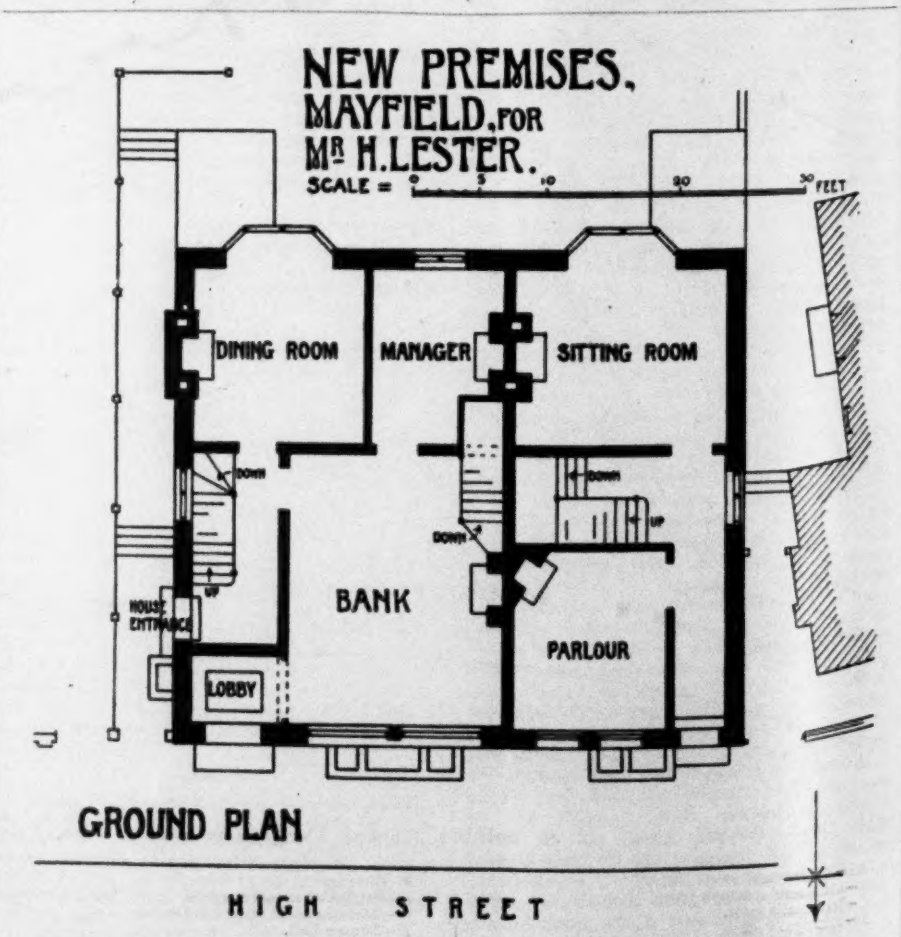
Messrs. J. Garrett & Son, of Balham, were the contractors for the work, the architect being Mr. Philip A. Robson, of Westminster.

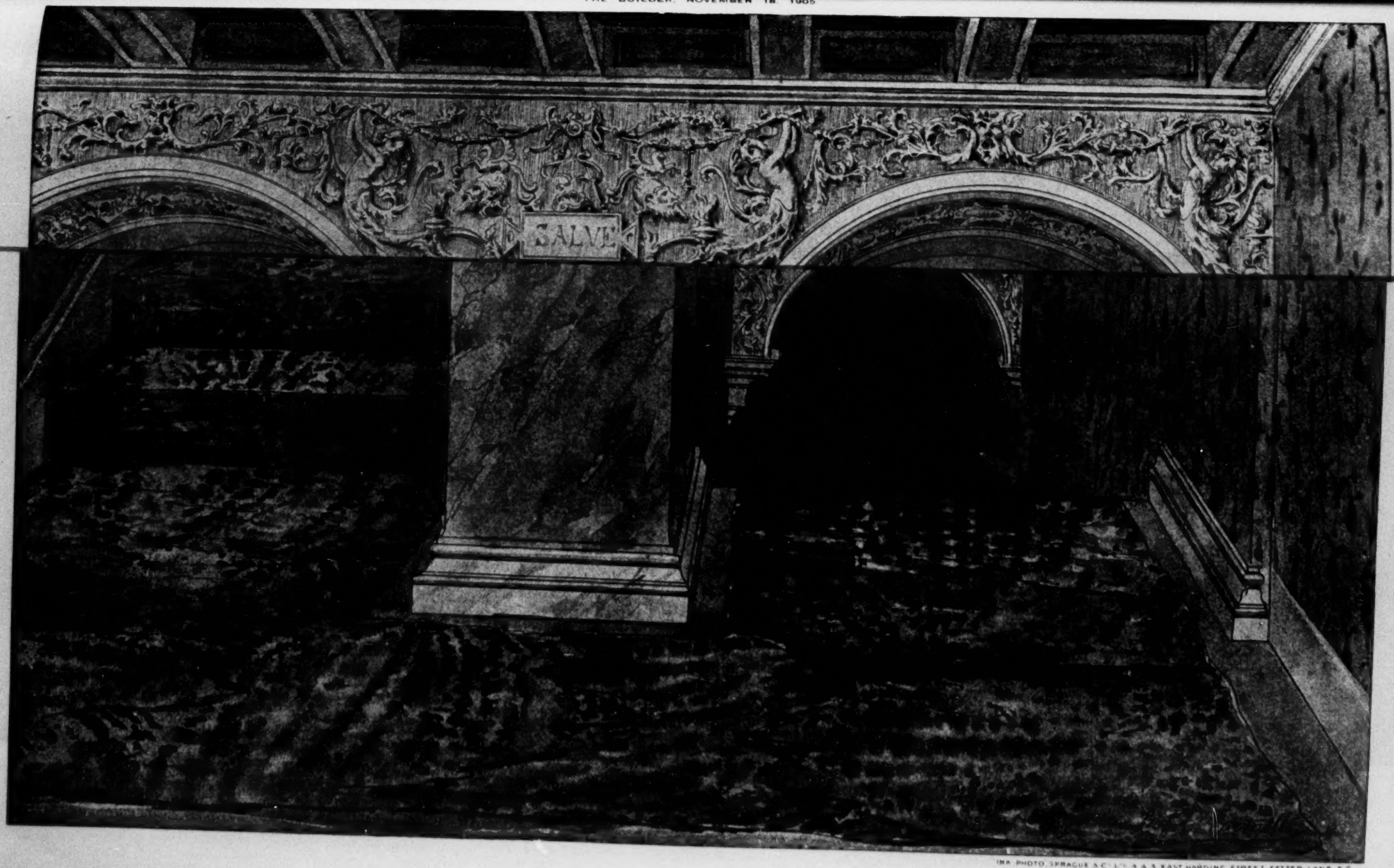
NEW PREMISES, MAYFIELD, SUSSEX.

THESE premises are now in course of erection in High-street, Mayfield, and have been designed to harmonise with the many interesting old houses in the place. They comprise a bank for Messrs. Barclay & Co., with manager's residence attached, and another separate residence. From the south side a magnificent view is obtained over the hills towards Heathfield.

Best kiln stocks from the Crowborough Brick Company are being used for facings, and above the string course the walls are cemented. The roof will be covered with hand-made tiles resembling old ones from the Rotherfield Brick Company.

The contract is being carried out for the owner, Mr. H. Lester, of Mayfield, by Messrs. Peerless, Dennis, & Co., of Eastbourne, and the architect is Mr. Percy K. Allen, of Tunbridge Wells.





INR. PHOTO. SPRAGUE & C° L^TD. 4 & 5 EAST HARDING STREET FETTER LANE E.C.

DESIGN FOR DECORATION OF A STAIRCASE IN A TOWN HOUSE.—By Chevalier C. Formilli

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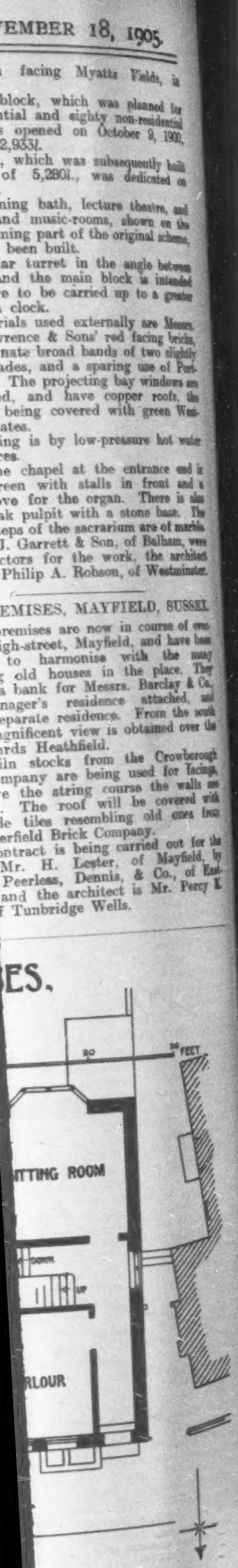
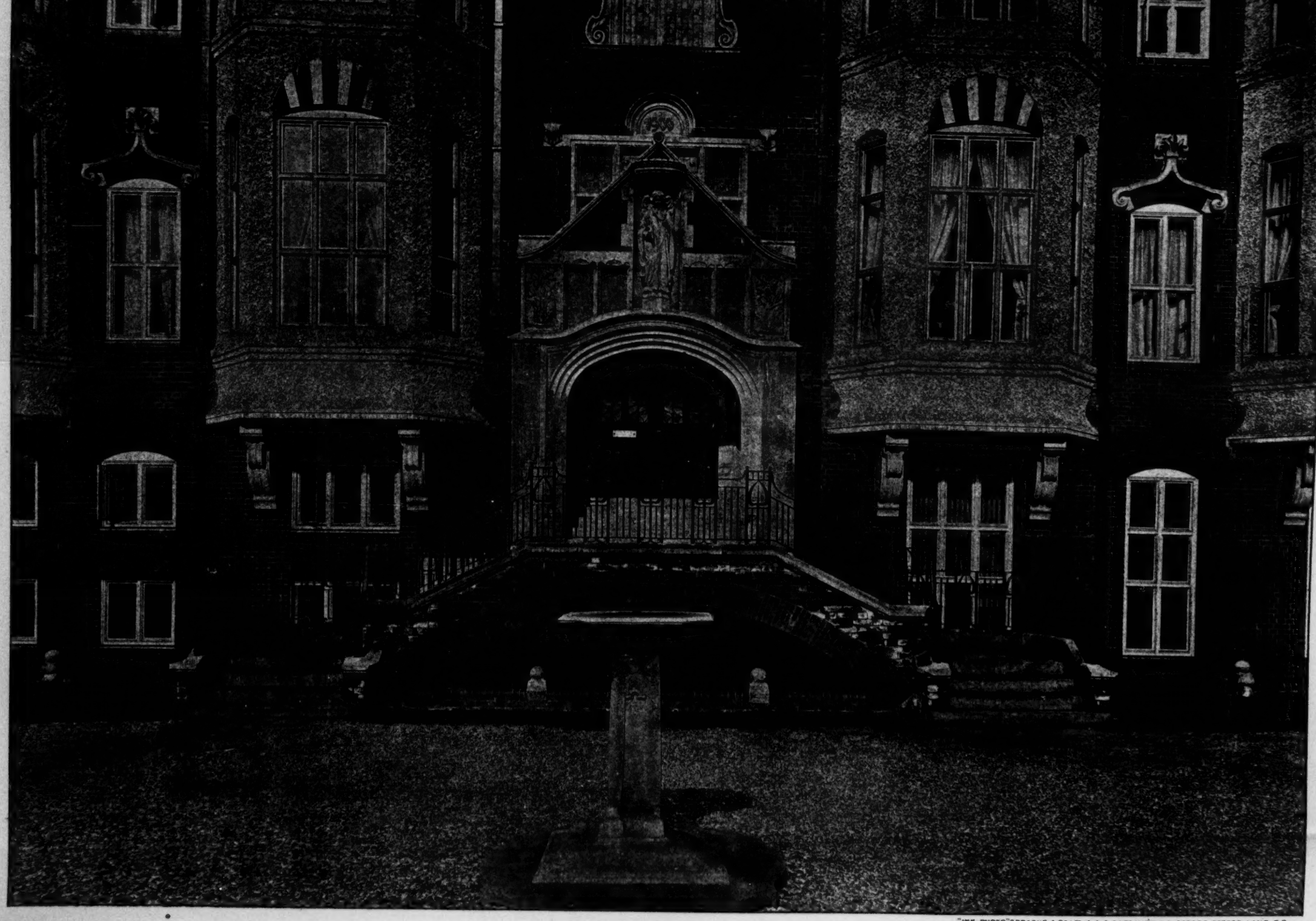


INK PHOTO SPRAGUE & C° LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

DESIGN FOR DECORATION OF A STAIRCASE IN A TOWN HOUSE.—By Chevalier C Formilli

GENERAL VIEW.



CENTRAL ENTRANCE.

"INK PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

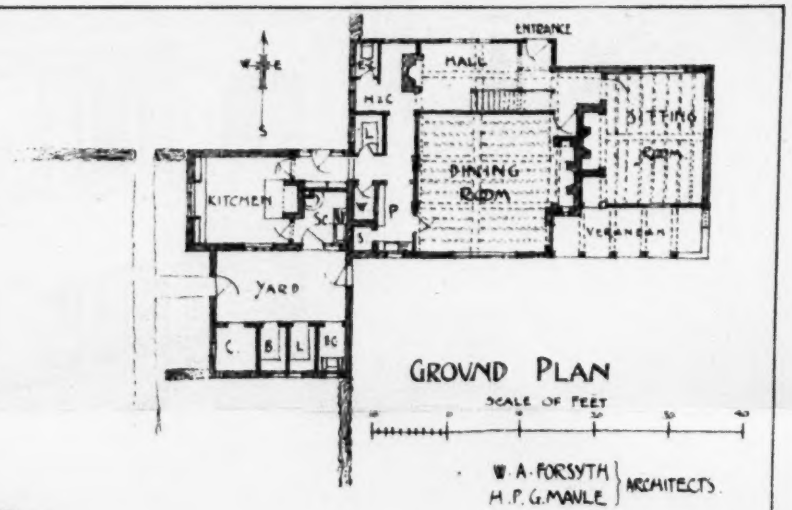
ST. GABRIEL'S TRAINING COLLEGE, CAMBERWELL.—MR. PHILIP A. ROBSON, A.R.I.B.A., ARCHITECT.

NEW PREMISES
HIGH ST. MAYFIELD.
Percy K. Allen, Architect.

PHOTO LITHO. SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

PHOTO LITHO SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

ADDITIONS TO "THE STOCKS" WITTERSHAM, KENT: 1902



GROUND PLAN

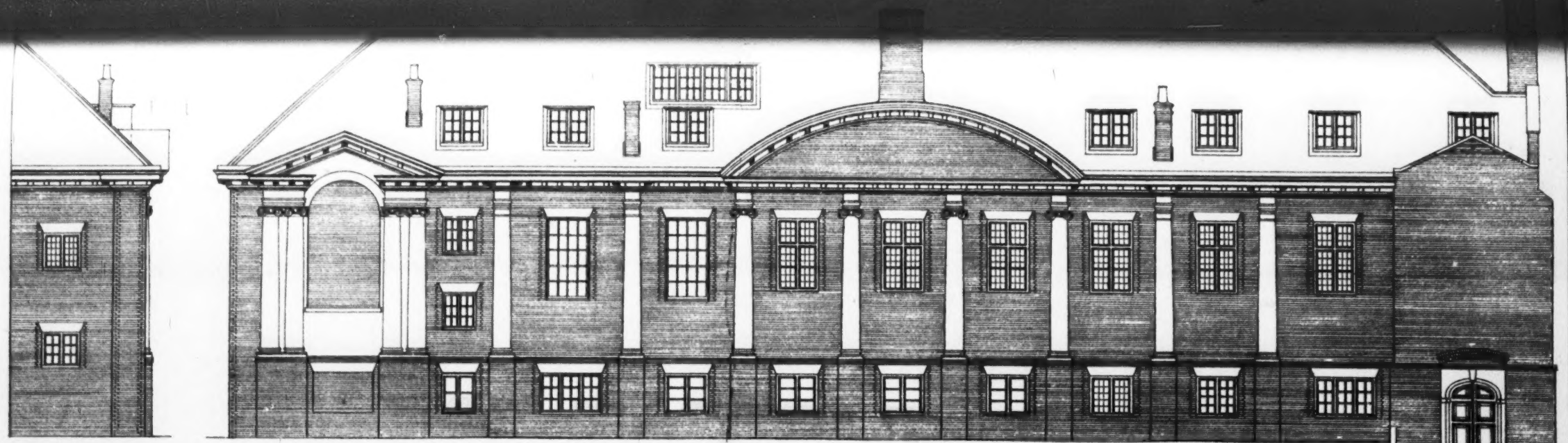
SCALE OF FEET

W. A. FORSYTH
H. P. G. MAULE
} ARCHITECTS.

W.A.F.

PHOTO LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

CHRIST'S HOSPITAL NEWGATE STREET DEMOLISHED 1902.



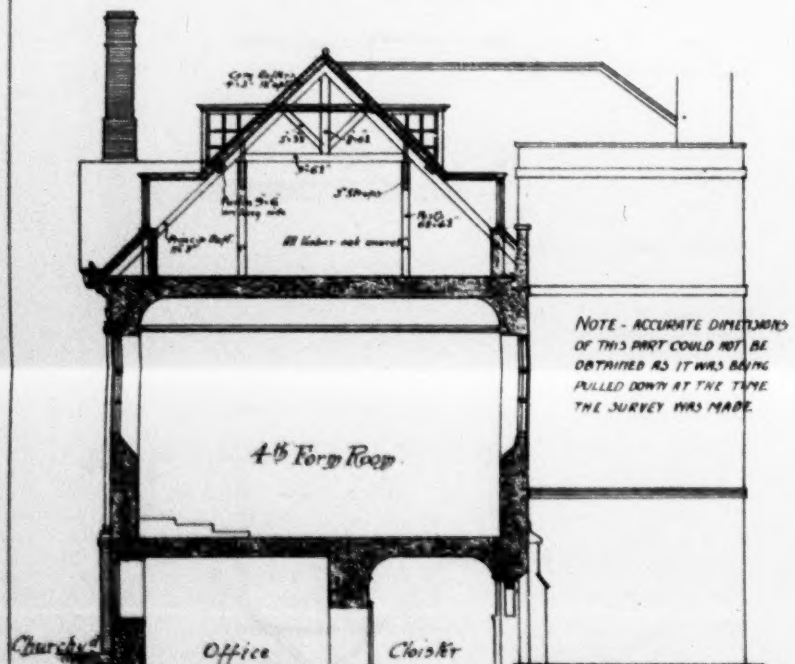
SIDE ELEVATION

Note - The portions left white denote gauged brickwork, cornice of wood

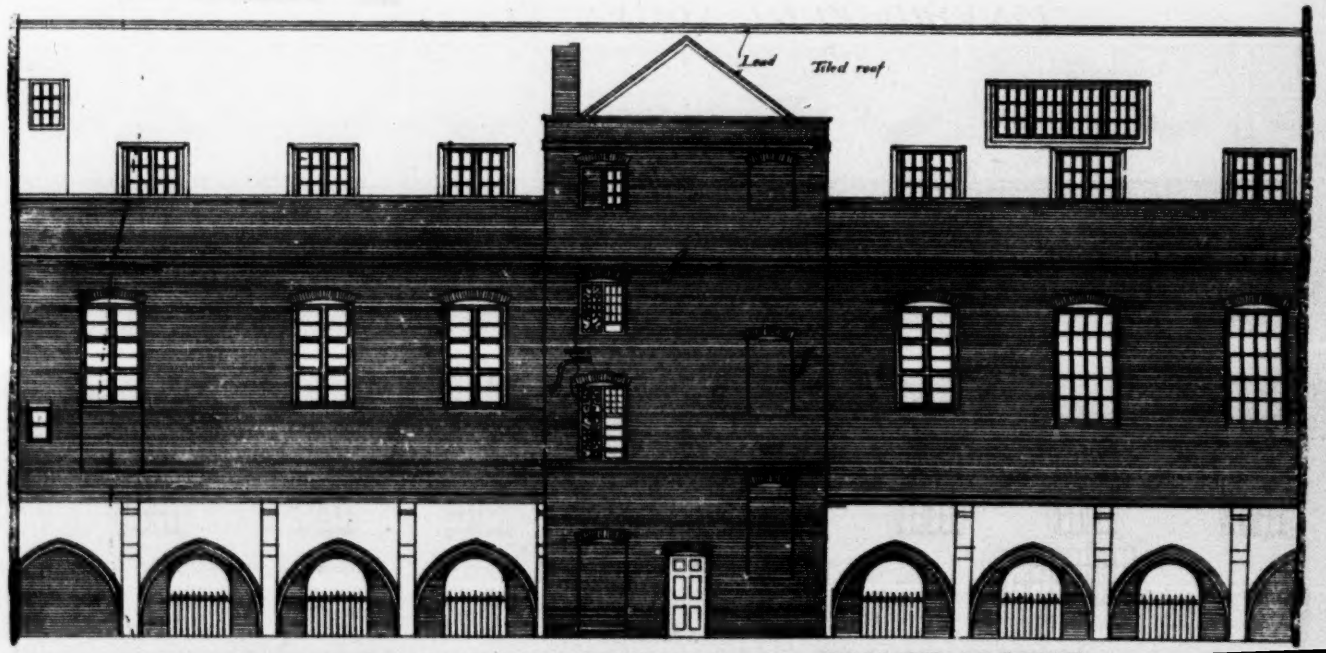
ELEVATION TO CHRIST CHURCH BURIAL GROUND

Church Passage

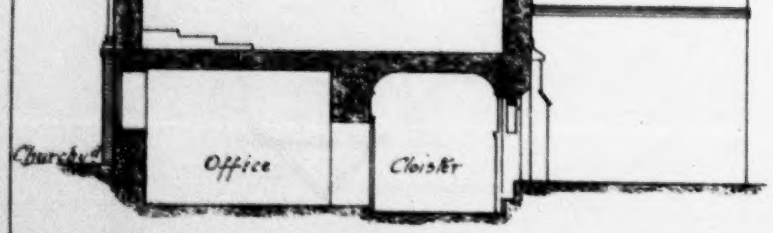
Scale of feet 0 5 0 10 20 30 40 50 60 70 80 90 feet



NOTE - ACCURATE DIMENSIONS OF THIS PART COULD NOT BE OBTAINED AS IT WAS BEING PULLED DOWN AT THE TIME THE SURVEY WAS MADE.

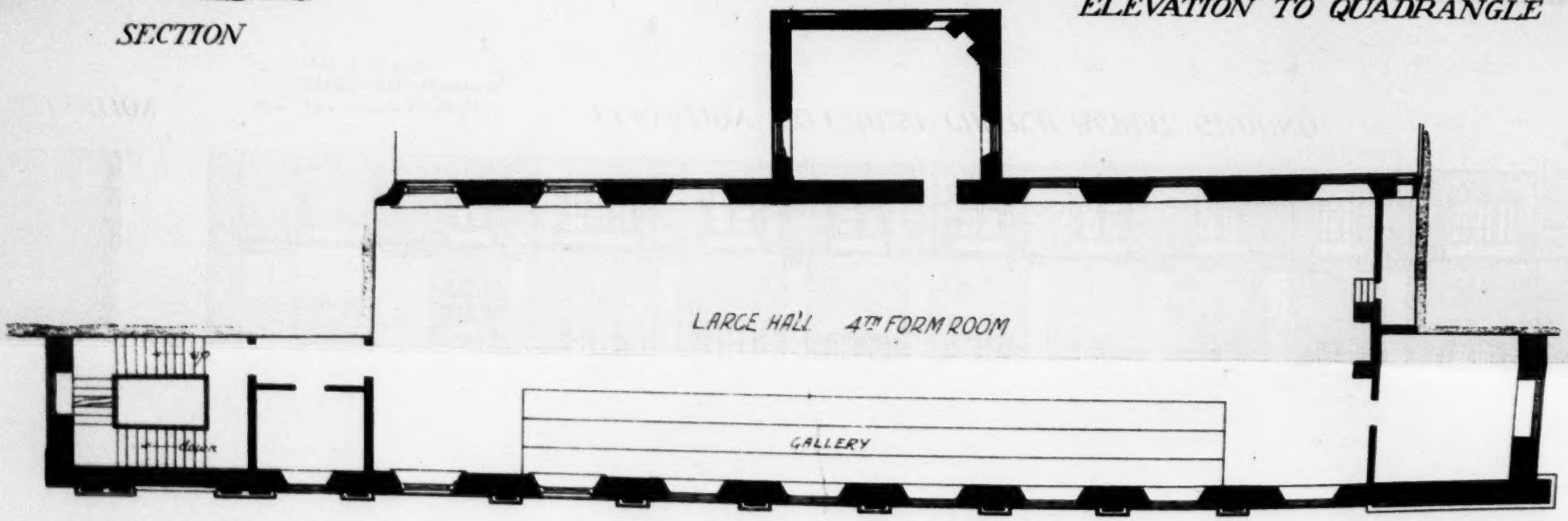


ELEVATION TO QUADRANGLE



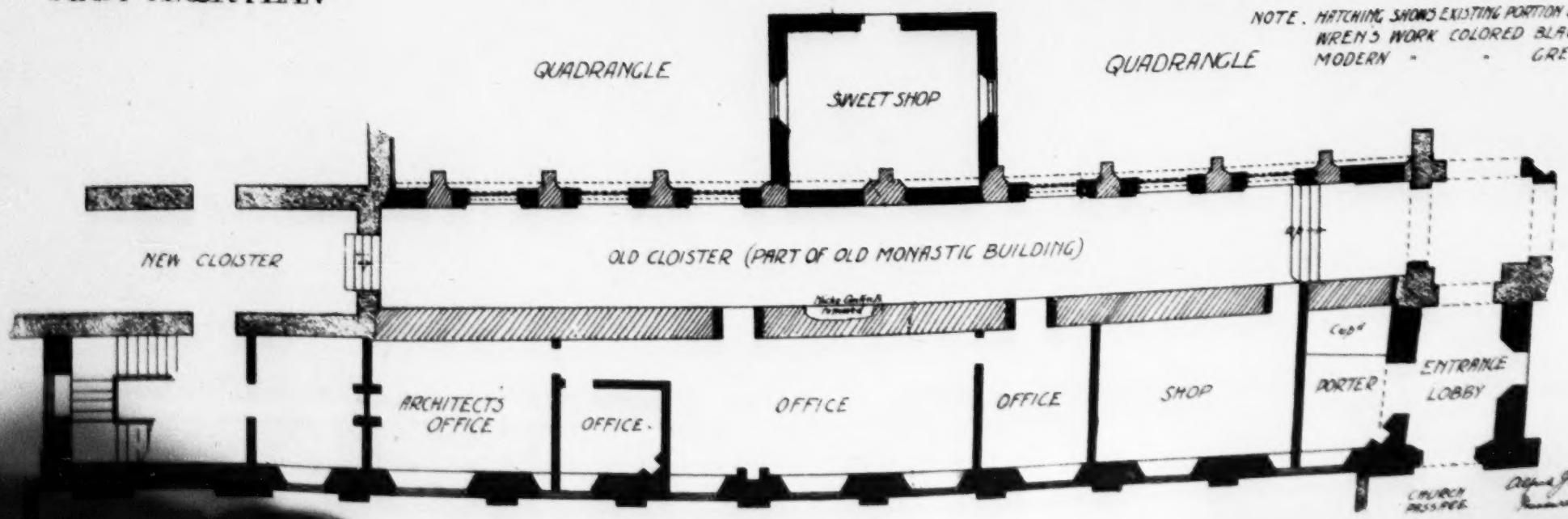
SECTION

ELEVATION TO QUADRANGLE



FIRST FLOOR PLAN

NOTE. HATCHING SHOWS EXISTING PORTION OF OLD BUILDING
WREN'S WORK COLORED BLACK
MODERN " " GREY



CHRIST CHURCH BURIAL GROUND

SECTION

"THE STOCKS," WITTERSHAM, KENT.

THIS is an old Kent cottage, the interior of which has been restored, and part of the additions shown on the plan carried out. The internal arrangements of the cottage comprised two tenements when the work was first undertaken, and the process of restoring it to the purposes of a single occupation was based upon the evidences found in walls and ceilings. The original building was wholly timber framed, but at some subsequent period, probably late XVIIth century, the ground story was replaced by brick walls. The principal rooms have all the oak joists as well as much of the timber framing exposed to view. The fireplaces are of the open-recessed order, having large oak lintels. In course of the repairs new ground floors and other works incidental to making the house dry were carried out.

Messrs. Ellis Brothers, of Rye, were the builders, and Messrs. Forsyth & Maule the architects, for the work.

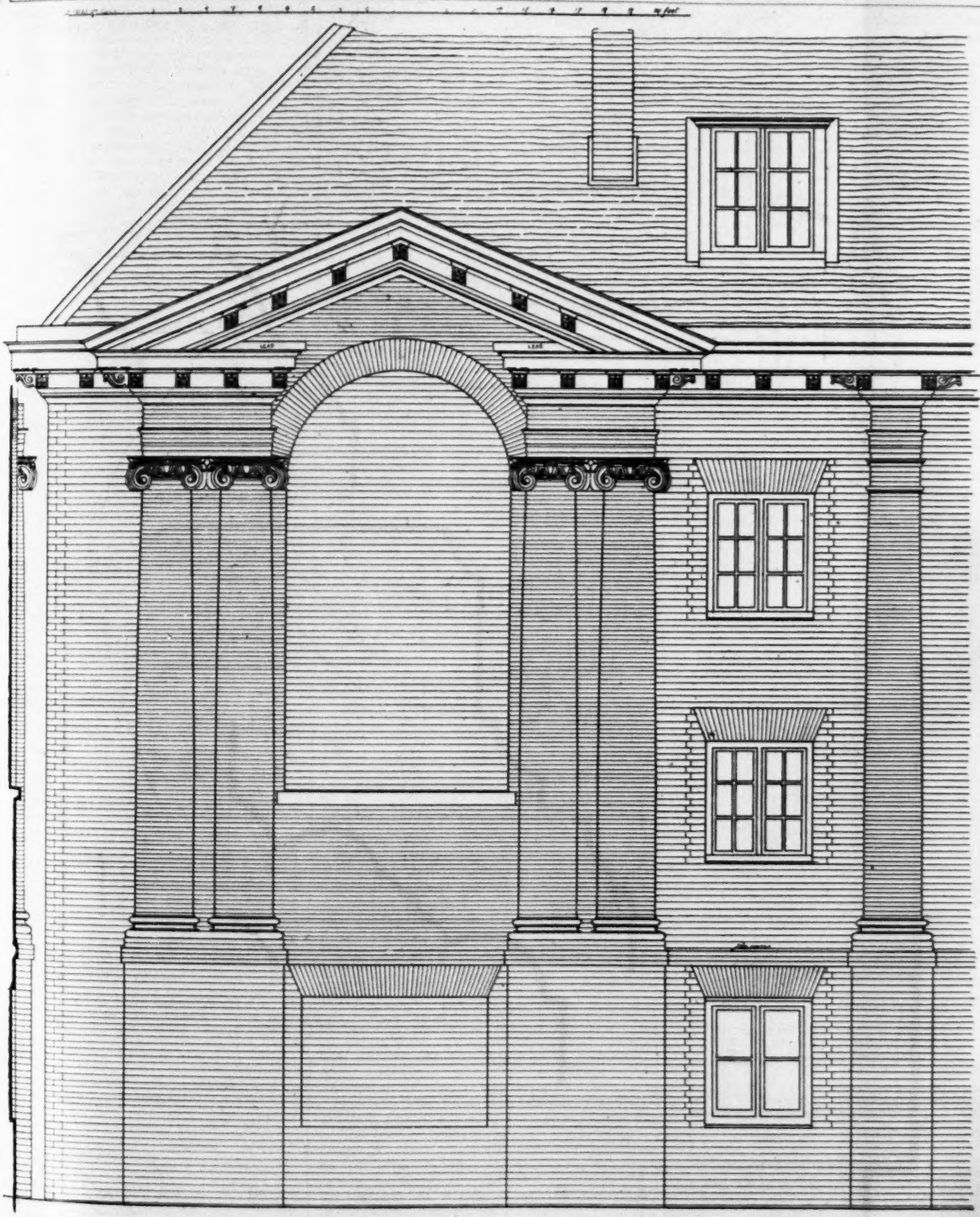
CHRIST'S HOSPITAL, NEWGATE-STREET.

THE portion of the school buildings shown was designed by Sir Christopher Wren in the year 1672, and carried out under his supervision. It had a frontage of 158 ft. to the burial-ground and entrance to Christ Church, Newgate-street, and an average width of 35 ft.

On the ground floor were the remains of the cloister which formed part of the ancient monastery buildings of the Grey Friars, erected about 1327. In erecting his school offices Sir Christopher carefully retained these ancient remains, although to do so meant putting his building out of the square.

On the first floor was the large fourth-form room of the school, and on the top floor were the lavatories and a bandroom.

The front elevation was of red brick with rubbed brick pilasters, caps, bases, string arches, and quoins, and was crowned with



SECTION. DETAIL OF ELEVATION TO CHURCHYARD.

Old Christ's Hospital.

a wood cornice and wood pediments. The roof was covered with red tiles.

The details of this front were very typical of Wren's work, and, toned with age as it was, it formed a very fine yet simple piece of brick architecture, and it is a matter of great regret that it should have been pulled down. It was in excellent preservation, with the exception of parts of one or two caps, and part of the wood cornice.

The portion over the entrance from Christ Church-passage had been removed to Horsham before the survey was made, together with many other objects worthy of preservation.

This survey had to be carried out under great difficulties, as the house-breakers were already demolishing before the work was commenced.

A. J. PEYTO.

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly meeting of the Managers of the Metropolitan Asylums District was held on Saturday last week at the offices, Victoria Embankment.

Among the correspondence received were letters from the Local Government Board sanctioning the plan of the additional coal storage and pump and heater-room at the South-Eastern Hospital, and the plan relating to the proposal to provide storage for coal and coke at the Southern Hospital.

Darenth Asylum.—The Finance Committee submitted an estimate of 6,215*l.* for the construction of new industrial workshops at the Darenth Asylum.

Leavesden Asylum.—The same committee further submitted an estimate of 5,360*l.* for iron bridges at this asylum.

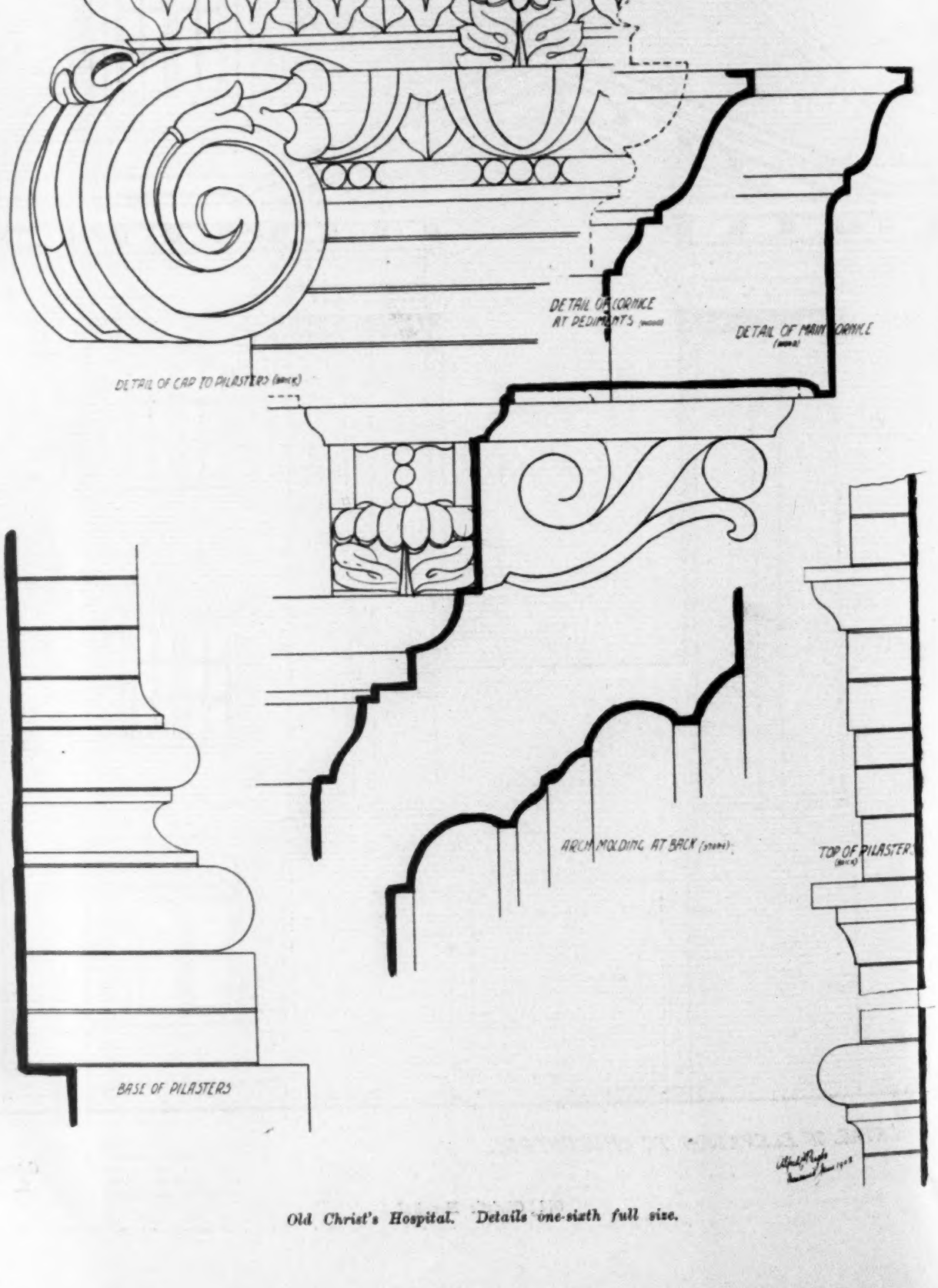
It was agreed to apply to the Local Government Board for sanction to the expenditure of both amounts.

Bacteriological Laboratories.—The Works Committee reported that they had appointed Messrs. T. W. Aldwinckle & Son as architects for the proposed bacteriological laboratories and stabling at Peckham and Sutton respectively.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Sir E. A. Cornwall, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Poplar Borough Council 15,312*l.* for paving works; 2,497*l.* for electric lighting purposes, and 1,650*l.* for construction of footbridge and approaches; Camberwell Borough Council 1,495*l.* for housing purposes; Hackney Borough Council 500*l.* for contribution to


DETAIL OF CORNICE AT PEDIMENTS
DETAIL OF MAIN CORNICE
DETAIL OF CAP TO PILASTERS (brick)
ARCH MOLDING AT BACK (stone)
TOP OF PILASTER (brick)
BASE OF PILASTERS

Old Christ's Hospital. Details one-sixth full size.

reconstruction of bridge; Guardians of St. George's Union 6,771*l.* for poor law purposes; and Wandsworth Borough Council 10,215*l.* for street improvements.

Tramways.—The Highways Committee recommended, and it was agreed :—

"(*a*) That the supplemental estimate of expenditure on capital account of 19,780*l.*, submitted by the Finance Committee, be approved, in addition to the amounts authorised in the votes on April 4, 1905, and June 26, 1905, in respect of cables and cable-ducts for the Battersea, Wandsworth, and Garrett-lane tramways, the New Cross to Rushey Green lines, and the Greenwich to Blackwall Tunnel lines.

(*b*) That the estimate of expenditure on capital account of 4,500*l.*, submitted by the Finance Committee, be approved, in respect of the provision of cables and cable-ducts for the Vauxhall Bridge-road and Vauxhall Bridge tramways."

Speed of Motor-cars.—The Public Control Committee recommended that the clerk of the Council do inform the Royal Commission on Motor-cars that, in the opinion of the Council, it is not desirable that any speed limit for motor vehicles should be prescribed for the County of London.

Mr. Verney moved an amendment to add the following words :—"And that the Council is of opinion that the safety of the public would be best consulted by prohibiting for some definite period the use of a car whose owners or drivers have been twice convicted of dangerous driving, any subsequent conviction to be punished by imprisonment, without the option of a fine."

The amendment was not carried, and the recommendation of the Committee was adopted.

The Subway Trams.—Mr. Allen Baker, in reply to a question by Mr. E. Smith, stated that the Highways Committee hoped to have the trams running through the subway from Aldwych to the Angel at Islington before the end of the year.

Supply of Electrical Energy.—The Council proceeded to consider the reports of the Highways Committee and the Finance Committee on the proposal to promote a Bill in the next session to enable the Council to supply electrical energy in London and certain surrounding districts in bulk.

Capt. Hemphill, on behalf of the Highways Committee, formally moved :—

"That authority be sought in the session of Parliament of 1906 (1) to enable the Council to supply electrical energy in London and certain surrounding districts on the lines indicated in the report of the Highways Committee, dated October 23, 1905; (2) to confer upon the Council power to carry out any necessary works, including the erection of buildings, the laying of mains, etc., necessary to give effect to such powers; (3) to empower the Council to make arrangements with local authorities and others having power to supply electrical energy, and to enter into agreements to give effect thereto; and (4) to confer upon the Council any general powers which may be necessary to enable it effectively to supply electrical energy.

That the costs and expenses of promoting the legislation referred to in the foregoing resolution be defrayed out of the County Fund."

Mr. Percy Harris contended that the Council should not rush into any project which was not demanded by the public, and which might injure the financial credit of the Council and its credit as a business body. He moved as an amendment that :—

"The recommendation be referred back to the committee for further consideration, with an instruction to the committee that the Council is unwilling to promote a Bill relative to the supply of electrical energy in London which is not based upon any definite scheme, or upon any agreement with the borough councils or existing companies, or upon any estimates which would enable the Council to judge of the financial responsibilities to be incurred by the ratepayers; and, further, that it be an instruction to the committee to consider the whole matter, and in particular to report whether, in view of the heavy commitments of the Council, and the speculative nature of the proposed enterprise, the Council's efforts should not be directed to securing the supply of electrical energy by new or existing undertakers on terms and conditions which would safeguard the public interests."

Mr. R. A. Robinson, in seconding the amendment, dealt with the present position of the ratepayers of London.

After considerable discussion, the Council divided, with the following result :—For the amendment, thirty-six; against, seventy-nine. The amendment was accordingly not carried.

Sir Francis Mowatt moved a further amendment to add the folowing words to the main resolution :—

"Provided that before the introduction into Parliament of any Bill opportunity shall be afforded for a full discussion in the Council of its provisions, especially as they affect the financial consequences of the scheme."

Mr. McKinnon Wood seconded the amendment, which was carried on a division, seventy-nine voting for, and thirty-two against.

The main resolution as amended by Sir Francis Mowatt was thereupon adopted, the second paragraph being passed without challenge.

Sites for Car-sheds and Sub-stations.—The Highways Committee recommended, and it was agreed, that authority be sought in the session of Parliament of 1906 to enable the Council to acquire compulsorily the undermentioned properties required as sites for the erection of buildings in connexion with the electrical working of the Council's (Northern) Tramways, namely :—

Description of Site.	Interest (if any) at present held by Council.	Purpose required for.
(i.) Property known as Nos. 191, 193, and 195, Abbott-road, Poplar	Freehold ..	Car-shed (approach).
(ii.) Property at Stamford-hill	None	Car-shed.
(iii.) Parkhurst-road, Holloway, tramways depot and stone-yard, with Nos. 65 and 67 (part of), Parkhurst-road	Leasehold ..	Car-shed.
(iv.) Warlters-road, Holloway, tramways depot	Leasehold ..	Sub-station.
(v.) Property at Holloway	None	Car-shed and sub-station.
(vi.) "Angel," Islington, tramways depot, Pentonville-road	Yearly tenancy	Sub-station.
(vii.) Property at Islington	None	Sub-station.
(viii.) Property known as Nos. 1 to 15 (odd), Wellington-road, Bow	None	Car-shed.

It was also agreed :—

"That authority be sought in the session of Parliament of 1906 to enable the Council to construct junction lines between the tramways in East India Dock-road and Upper Clapton-road and the car-sheds proposed to be erected at Poplar and Stamford Hill respectively.

That authority be sought in the session of Parliament of 1906 to enable the Council to make such alterations in the route of the subway authorised by the London County Council (Subways and Tramways) Act, 1902, and to acquire such further property as may be necessary, to enable a station to be constructed in the subway immediately to the south of the Strand, under Wellington-street."

Improvements.—The adjourned report of the Highways and the Improvements Committees in regard to Lewisham High-road to Forest Hill tramway, and Malpas-road to Stanstead-road improvement was brought up, and the following recommendations were agreed to :—

"That application be made to Parliament in the session of 1906 for authority to construct along Shardeloes-road, instead of along Malpas-road, a portion of the tramways between Lewisham High-road and Forest Hill authorised by the London County Council (Tramways and Improvements) Act, 1904.

That application be made to Parliament in the session of 1906 for authority to widen Shardeloes-road in general accordance with the plan presented to the Improvements Committee on October 25, 1905, and that provision be made in the Bill to the effect that the Council of the Metropolitan Borough of Deptford will contribute one-third of the net cost of the improvement.

That so much of the resolution of December 20, 1904, as relates to the approval of an estimate of 104,000*l.* in respect of the Malpas-road to Stanstead-road improvement be rescinded.

That the estimate of 89,000*l.* [in substitution for the estimate of 104,000*l.* approved on December 20, 1904] submitted by the Finance Committee in respect of the widening of Shardeloes-road, Brockley-rise, Brockley-road, and Stanstead-road, be approved.

That expenditure on capital account up to 89,000*l.* be authorised for the widening of Shardeloes-road, Brockley-rise, Brockley-road, and Stanstead-road."

School Sites.—The Education Committee recommended, and it was agreed, to acquire, at an expenditure not exceeding 4,000*l.*, a portion of the site in Craster-road, Norwood, and additional property adjoining the Thomas-street site, Limehouse.

Schools.—The Education Committee recommended, and it was agreed, to expend 4,133*l.* on the erection of a school for the accommodation of sixty physically defective children on the "Friern" site, Dulwich. It was also agreed to carry out the work without the intervention of a contractor. It was also recommended and agreed :—

"That the estimate of expenditure on capital account of 3,513*l.* submitted by the Finance Committee in respect of the erection of a school for the accommodation of sixty physically defective children on the "Hatcham" site (Peckham) be approved. . . . That the work be done without the intervention of a contractor; and that the drawings, quantities, specification, and estimate of 3,585*l.* be referred to the Works Committee for that purpose."

The same Committee also proposed, and it was agreed :—

"That the estimate of expenditure on capital account of 3,278*l.*, submitted by the Finance Committee in respect of the enlargement by 300 places of the new school on the Sellincourt-road site (Wandsworth), be approved. . . . That the work be done without the intervention of a contractor; and that the drawings and specification be referred to the Works Committee with a view to the work being done at the schedule of prices for the first portion of the school."

Conditions of Contract.—The Education Committee reported as follows :—

"At the request of the General Purposes Committee we recently forwarded a copy of the standing orders relating to contracts, together with the schedule of rates of wages and hours of labour, to each of the contractors on the list of selected firms taken over from the late authority. The attention of each contractor was drawn to the Council's conditions of contract, and he was asked whether he would comply with them. Subjoined is a summary of the replies received in response thereto :—

(i.) 317 firms state that they are prepared to observe the conditions laid down in the standing orders relating to tenders and contracts.

(ii.) Seventeen firms ask that their names may be removed from the list.

(iii.) Twenty-eight firms have not replied, although a second communication has been forwarded to them.

We are of opinion that the 317 firms referred to above should be retained on the selected list, and that the names of the remaining firms should be removed from the list. There are also four other firms whose names for various reasons should be removed from the list. The names and addresses of the firms in question will be laid upon the table. We recommend :—

(*a*) That the names of 317 firms specified on the list (marked A) of contractors selected to tender for works to the Council's schools who have intimated their willingness to observe the conditions laid down in the standing orders relating to tenders and contracts be retained on such list.

(*b*) That the names of forty-nine firms specified on the list (marked B) be removed from the list of contractors selected to tender for works to Council's schools."

The recommendations were agreed to.

Workmen's Trains.—The Housing of the Working Classes Committee recommended, and it was agreed :—

"(*a*) That His Majesty's Government be asked to introduce a Bill in the next session of Parliament providing for the amendment of the Cheap Trains Act, 1883, in conformity with the conclusions and recommendations contained in the report, dated July 27, 1905, of the Select Committee on Workmen's Trains.

(*b*) That the Board of Trade be requested to call upon the London railway companies concerned to give immediate effect to recommendations 5 and 7 of the Select Committee on Workmen's Trains dealing with the conditions under which workmen's tickets are issued, and the reservation of carriages for work-women where the traffic is heavy."

List of Rates of Wages and Hours of Labour.—The Works Committee reported as follows :—

"Revised working rule agreements have been made between the London Master Builders' Association and the bricklayers, carpenters and joiners, stonemasons, plumbers, general smiths and fitters, and the working hours during the year have been altered so as to provide that 44 hours a week shall be worked throughout the thirteen weeks of winter, except in the case of plumbers, who will work 41½ hours a week for the first ten weeks of winter. Under standing order No. A 244 (1) the Council's list of rates of wages and hours of labour should be amended in accordance with the terms of the agreements. The revised working hours will come into operation as from November 13, 1905, and we propose that the alteration in the list should be made as from that date. There are no working rule agreements between the association and the mill sawyers', painters', and labourers' societies, and we shall report later, if necessary, as to any alterations in the hours of labour of these trades. The existing working rule agreement between the association and the plasterers' society does not terminate until March 3, 1906, and consequently no alteration is made in the working rules of that trade. We think it desirable that the trades of timbermen and scaffolders and of mill sawyers, who are now classified in the list of rates of wages under "various trades," should be placed under the head of "building trades," and that the rate of pay for overtime worked by the two former trades should be the same as labourers and navvies. We recommend :

(*a*) That the undermentioned trades be classified in the Council's list of rates of wages and hours of labour under the head "building trades"—Timbermen, scaffolders, mill sawyers, and wood cutting machinists.

(*b*) That the rate of pay for overtime, when worked at the request of employer, inserted in the Council's list of rates of wages and hours of labour for the trades of timbermen and scaffolders, be amended as regards payment for overtime worked until 8 p.m., and be as follows :—

"After 7 p.m. until 8 p.m.—Time and a half."

(*c*) That the hours of labour of the undermentioned trades inserted in the Council's list of rates of wages and hours of labour be amended, and be, during the thirteen weeks of winter, commencing on the second Monday in November, 44 hours per week :—

Carpenters, joiners, bricklayers, bricklayers (cutting and setting gauged work), masons (fixing), masons (granite work), masons; smiths, fitters, gas-fitters, etc. (in shops, general smiths and fitters to work summer hours throughout the year, should the employer desire it).

(*d*) That the hours of labour of the undermentioned trades inserted in the Council's list of

wages and hours of labour be amended, and be during the first ten weeks of winter, commencing on the second Monday in November, 41½ hours per week, and for the next three weeks 44 hours a week:—

Plumbers, plumbers' mates."

The recommendations were agreed to, and the Council then adjourned.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Erection of Buildings on the South-west Side of Finchley-road and North Side of Lymington-road, Hampstead.

Hampstead.—(*a*) That the resolution of May 16, 1905, consenting to the erection of buildings on the south-west side of Finchley-road and north side of Lymington-road, Hampstead, be rescinded. (*b*) Buildings upon a site abutting upon the south-western side of Finchley-road and northern side of Lymington-road, Hampstead (Mr. J. D. Hunter for Mr. W. F. Cave).—Consent.

Kensington, South.—That the resolution of November 1, 1904, consenting to the erection of a one-story studio at the rear of No. 34, Addison-road, Kensington, be rescinded.—Agreed.

Dwelling-houses on Low-lying Land.

Woolwich.—That a licence be granted under section 122 of the Act, 1894, to Mr. Patterson, for the erection of a shop and dwelling-house with stable and coach-house at the rear, on low-lying land situated at the corner of Abbey Wood-road and Bostal-lane, Woolwich (Mr. E. J. Bennett).—Consent.

Southwark, West.—That a licence be granted under section 122 of the Act, to Mr. W. Sumpton for the erection of two blocks of dwellings on low-lying land situated at the corner of Webber-street and Barron's-place, Southwark (Mr. W. Hobern).—Consent.

Lines of Frontage and Projections.

Hammersmith.—Buildings (public baths and wash-houses) on a site abutting upon the north side of Scotts-road and west side of Lime-grove, Hammersmith (Mr. J. E. Franck for the Council of the Metropolitan Borough of Hammersmith).—Consent.

Kensington, South.—A conservatory at the rear of No. 66, Holland-park, Kensington, to abut upon Holland-park-avenue (Messrs Stimpson & Chambers for Mr. C. Wilkinson).—Consent.

Wandsworth.—A church on a site abutting upon the southern side of Mitcham-road and eastern side of Rookstone-road, Wandsworth (Messrs. Gordon & Gunton).—Consent.

Bethnal-green, North-east.—One-story shops and a one-story addition at the rear of No. 379, Bethnal-green-road, Bethnal-green, to abut upon Teesdale-street (Mr. C. M. Shiner for Mr. W. A. Balls).—Refused.

Lewisham.†—A building on the east side of Torridon-road, Lewisham, to abut upon the north side of Hazelbank-road (Messrs. A. C. & R. A. Blake).—Refused.

Strand.†—A new iron and glass shelter at the Comedy Theatre, Panton-street and Oxenden-street, Haymarket (Messrs. Gillow & Co. for the proprietors of the Comedy Theatre).—Refused.

Width of Way and Line of Frontage.

Dulwich.—Six houses with bay-windows on the west side of Vestry-road, Peckham-road, Camberwell (Messrs. E. Crosse & Co. for Mr. G. Pedley).—Refused.

Width of Way.

Lewisham.—A one-story building at the rear of No. 37, Ladywell-road, Lewisham, to abut upon a passage out of the west side of Church-grove, Lewisham (Mr. G. Kimble for Mrs. F. Kimble).—Consent.

Finsbury, Central.—A boundary wall at the "Hugh Myddelton" schools, on the north side of Sans-walk, Finsbury (Education Committee of the Council).—Consent.

Width of Way, Line of Frontage and Space at Rear.

Kennington.†—A workshop on the northern side of Richmond-terrace, Clapham-road, Kennington, westward of No. 90, Clapham-road (Messrs. J. A. J. Woodward & Sons for Mr. C. Blatchford).—Refused.

Formation of Streets.

Fulham.—That an order be issued to Messrs. Cluttons sanctioning the formation or laying out of a new street for carriage traffic to lead from Napier-avenue to Cromwell-avenue, Fulham, and in connexion therewith the widening of portions of Napier-avenue and Cromwell-avenue (for the Ecclesiastical Commissioners).—Consent.

Bethnal-green.—That an order be issued to the Council of the Metropolitan Borough of Bethnal-green, sanctioning the formation or laying-out of a new street for carriage traffic to lead from Gawber-street to Cyprus-street, Bethnal-green.—Consent.

Hammersmith.†—An extension of the period within which the conditions contained in the resolution of September 3, 1903, sanctioning the formation or laying-out of new streets on the east side of Wood-lane, Hammersmith, at the corner of North-pole-road, Hammersmith, were to be complied with (Messrs. Weatherall & Green).—Refused.

Cubical Extent.

Greenwich.—A deviation from the plans approved for the erection of a building on a site abutting on the River Thames and approached from Blackwall-lane, Greenwich (Messrs. Mark Fawcett & Co.).—Consent.

Means of Escape from Top of High Buildings.

City of London.—Means of escape proposed to be provided on the fifth (top) story of Nos. 22 and 23, Fenchurch-street and No. 2, Rood-lane, City (Mr. E. B. Ellis for Messrs. Kleinwort Sons, & Co.).—Consent.

Working-class Dwellings.

Camberwell, North.—Dwelling-houses to be inhabited by persons of the working class, and proposed to be erected on a site at the rear of dwellings on the south side of Picton-street, Camberwell (Messrs. J. & J. Woodward & Sons for Mr. J. Dennis).—Refused.

The recommendations marked † are contrary to the views of the local authority.

COMPETITION.

CENTRAL FIRE STATION FOR WILLESDEN.—The Works Committee of Willesden Urban District Council reported on Monday having appointed a sub-committee to consider as to the premiums to be offered for competitive designs for the erection of a central fire station in Harlesden-road, and to draw up conditions of competition.

BOOKS RECEIVED.

PLASTERING: PLAIN AND DECORATIVE. By William Millar, Plasterer and Modeller. Third edition. (B. T. Batsford. 18s.)

A HISTORY OF THE DEVELOPMENT OF ARCHITECTURE. By F. M. Simpson, Professor of Architecture, University College, London. (Longmans, Green, & Co. 12s. 6d.)

STUDIES IN ARCHITECTURE. By Reginald W. Blomfield, A.R.A. (Macmillan & Co. 10s.)

THE EARL OF MAR'S LODGING, STIRLING. By Ex-Baillie Ronald. (Eneas Mackay, Stirling.)

Correspondence.

LONDON'S WATER SUPPLY.

SIR,—Having seen a letter in your paper on the above subject, and more especially in relation to the acquirement of water storage sites in Wales, I thought that this had been under consideration several years ago. Having been in the United States the last four years, I was unable to follow the progress of the proposed works, and was much surprised on my return to find them dropped, instead of in a fair way to completion.

Liverpool and Birmingham are already in the Welsh mountains for their water supply, and there is nothing to prevent other large towns much nearer than London acquiring the pick of the remaining sites, and leaving this city, which certainly requires the best ones, to make the best of what remains.

The quality of the present supply is, I believe, extremely good, and it is more than likely that the great strides in the question of sewage purification have had, and still have, a great deal to do with the present high standard. But is it right to the people of this city that the largest source of supply should be from a river which has such a closely populated watershed, with its dangers of sewage and other contamination? What would happen if the amount of water used even approached the amount considered necessary in American cities? The Thames and all its tributaries would be entirely inadequate. In Denver, Colorado, during the dry season the demand often runs up to 42,000,000 imperial gallons a day, and that to a population of only about 180,000, and the least demand is about 22,000,000 gallons. To cope with this great demand when the supply is smallest the company supplying the town have just completed the second highest dam in the world, 236 ft. from foundations to top of parapet walls, creating a reservoir having an available capacity of over 20,000,000,000 gallons, or over a year's supply at maximum requirements. This gives them ample storage capacity for years to come, and shows that there is no lack of foresight in that, to most of us, out-of-the-way place.

Are the water supply authorities here going to leave things till they are absolutely necessary, and then make people wait under a constant fear of shortage till the works are carried out, which works are a matter of years, not weeks?

G. FRED. VOLLMER.

*** We have pleasure in publishing Mr. Vollmer's outspoken and sensible letter. It shows what are the views of adequate water supply entertained in even secondary cities in the United States, while in England we are hampered by the restricted and ante-diluvian ideas of water engineers whose sole idea of water supply seems to be to find out to how small a supply a population can be screwed down.—ED.

THE EDUCATION OF THE ARCHITECT AND THE PUBLIC SCHOOLS.

SIR,—Mr. Belcher, in his excellent Presidential address, refers at some length to the education of the youthful architect, announcing the support the Royal Institute of British Architects has given to the scheme the new Board of Architectural Education has established.

But does the Institute or the Architectural Association go quite to the root of this important matter of the early education of the architectural student, without taking into account the public schools?

Efforts have been made with success in one or two of our public schools to give some practical training in elementary architecture, but in most of the schools nothing whatever is done. If the new Board of Education can awaken a desire in these schools for architectural knowledge, the public apathy towards the beauty of building, which Mr. Belcher deplores, would soon be removed.

Surely also parents have a right to expect that the same advantages of teaching and equipment that are at present provided for boys training for the army, medical, and engineering professions should be extended to those boys desirous to become architects. The Architectural Board of Education might reasonably press this matter, and a representative of the public schools on the Board would be useful in this direction, and should be considered. In addition, the introduction of more architectural knowledge in the preliminary examination of the Institute of British Architects would urge schools to take serious notice of a neglected subject.

A course of study in architecture can be easily arranged without any serious entrenchment on the usual school curriculum. A reasonable amount of architectural drawing, combined with a course of history on the evolution of architecture, carrying a boy through his preliminary examination and enabling him to prepare while at school some of his drawings for the intermediate examination, should be expected.

At present most boys leave school, and at times the University, without the smallest architectural education, either as a branch of æsthetics or as the necessary equipment of a cultivated person, and the deficiency is the more keenly felt by the youth who selects architecture as his profession.

MARTIN A. BUCKWORTH.

*** If our correspondent turns to the paragraph on "Art and Education," under the heading of "Notes," in our issue of September 9 (page 268), he will see that we have anticipated his suggestion. That Note was not without its practical effect, inasmuch as it led to a request from one Headmaster to the Editor of this Journal to come and give a Saturday evening lecture to the boys on architecture; which function comes off this week.—ED.

MUNICIPAL BUILDINGS, TOTTENHAM.—In the paragraph on these buildings in our last issue, the names of Mr. Arnold S. Tayler and Mr. A. R. Jemmett should have been given as joint architects, instead of that of Mr. Jemmett alone. We are not responsible for the error.

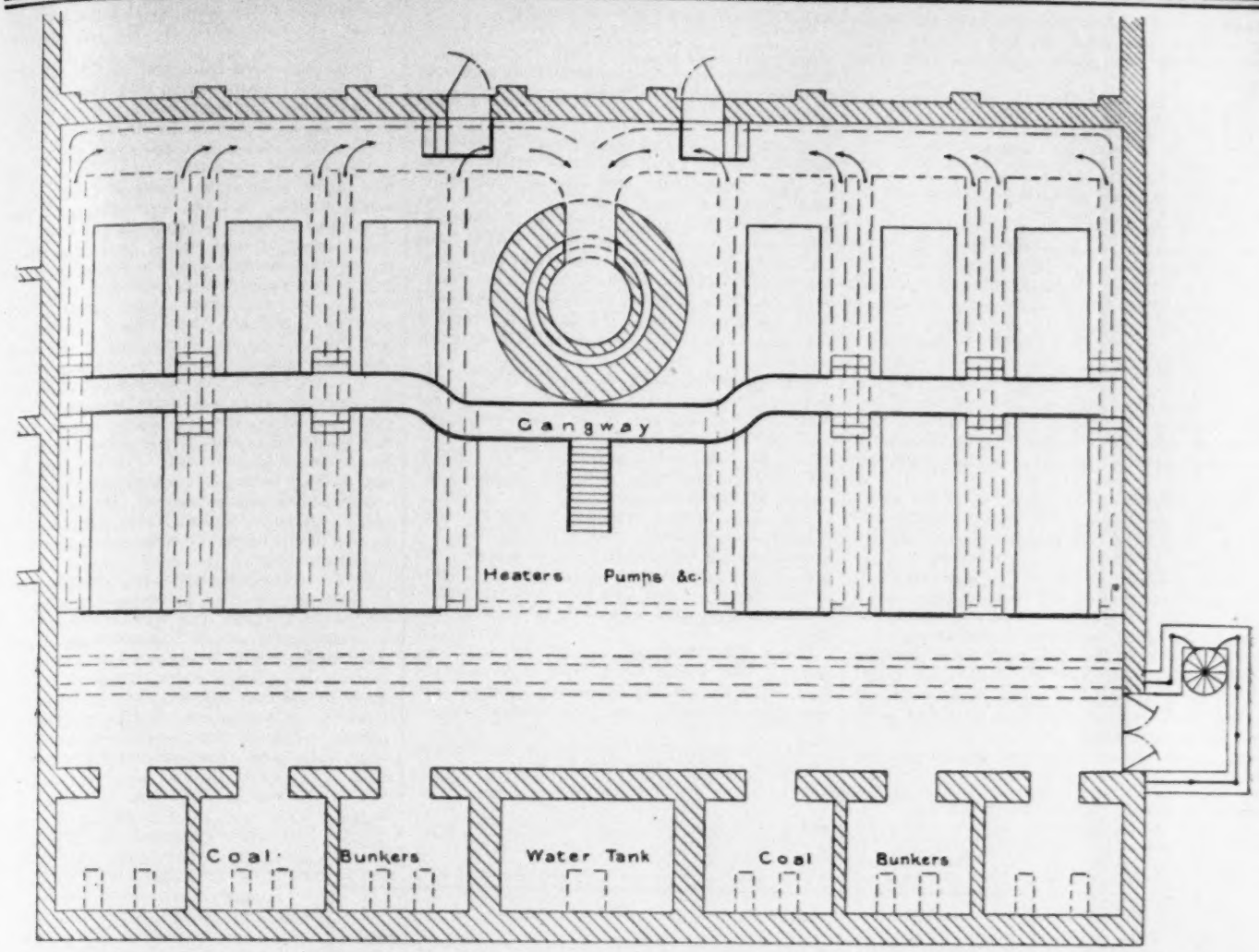


Fig. 59.

The Student's Column.

STEAM BOILERS AND PIPES.—XX.

Boiler-house Plant and Pipe Services.

No general rule can be laid down for the arrangement of apparatus in a boiler-house. The designer must use his discretion, keeping before him the necessity of placing each item of the plant in a position where it will not be liable to accidental injury or exposed to hostile influences, where it can be connected with a minimum quantity of piping, and where it can be examined or disconnected in time of need with a minimum amount of trouble; finally, he must bear in mind the convenience of the staff by whom the installation will have to be used.

When an entirely new building has to be designed the problem of evolving a suitable boiler-house arrangement is comparatively simple, especially if the site is of ample area.

On the other hand, when the plant has to be accommodated in an existing building, or in the extension of an existing building, it is generally difficult to arrive at an ideal scheme of arrangement.

For instance, the place most suitable for the pump-room may have to be occupied by the coal store, for reasons connected with the disposition of other portions of the building, the only permissible site for the chimney may necessitate the erection of the economiser in the least convenient position for the pumps and water heaters, and, owing to special circumstances, the engine-room may have to be situated just where the designer would like to place some parts of the boiler-house equipment. In such cases the system ultimately adopted represents a compromise between the desirable and the attainable. Difficulties of the kind are frequently aggravated by the boundaries of the available building site, and compromise becomes still more necessary.

Figs. 59 and 60 are plans of boiler-houses representing the two sets of conditions—(1) under which the designer had free scope, and (2) under which his hands were more or less tied by the narrowness of the site and other circumstances.

Fig. 59 is a plan of the boiler-house for an electricity generating station in the North of England. Between the two groups of boilers shown in the drawing a convenient place is provided for the feed pumps and water heater. The two main flues behind the boilers meet at the chimney inlet, and exhaust steam from the engine-room—placed parallel with the boiler-house—passes by one side of the chimney to the water heater. A gallery running above the two sets of boilers and over the pump-room is very convenient for the regulation of valves and the examination of the boiler mountings and steam pipes. The boiler-house floor is a few feet below the outside ground level, thus facilitating the direct delivery of coal into the two rows of bunkers, the position of which is excellent for convenience in stoking. A cold-water storage tank is situated between the coal bunkers. The feed main and blow-off pipe are in the continuous pit along the front of the boilers, branches being taken to the feed-valves, scum-cocks, and blow-off cocks.

As an example of symmetrical arrangement the plan in Fig. 59 is good, although presenting two manifestly undesirable features. One is the omission of fuel economisers, which may justly be regarded as absolute essentials in an installation of this character, and the other is the situation of the chimney-shaft in a position where its weight cannot but affect the foundations of the surrounding building, and particularly the wall immediately behind the main flues.

In this particular the designer appeafs to have sacrificed principles of sound construction to a desire for symmetry. If he had carried a main flue beneath the engine-room at the back of the boiler-house, or had continued the line of flue through one end of the boiler-house, the chimney could have been built with an entirely separate foundation, thus avoiding the risk of causing unequal subsidence of the soil supporting the foundations of the building and machinery.

Fig. 60 is a plan containing a diagrammatic representation of the steam generating plant and boiler-house pipe services for a public institution in the Midland Counties. As this is a class of installation more likely to interest our readers than the equipment of power-houses for electricity stations, we subjoin details of the apparatus included, and a description of the pipe system connected therewith.

Boilers.—The boilers are of the Cornish type, each measuring 15 ft. long by 5 ft. diam., worked at 80 lb. pressure, and fitted with mechanical stokers in order to reduce smoke production to a minimum, this being particularly desirable owing to the proximity of a residential quarter of the town.

Economiser.—The economiser consists of one battery of twenty-four pipes, the arrangement of the flues being such that the furnace gases can be delivered direct to the chimney-shaft when this course is necessary for permitting the examination or cleaning of the economiser.

Pumps.—In the small pump-room at the front of the boiler-house a Worthington boiler feed-pump is fixed, and a Worthington automatic pump and condense receiver for collecting and dealing with water of condensation gravitating through a system of condense mains and branches from the adjacent buildings. As the ground slopes down from these buildings no difficulty occurs in connexion with the return flow, and the pump-room floor is level with that of the boiler-house.

A boiler feed-tank, 3 ft. by 3 ft. by 3 ft., built of ¼-in. steel plate, is fixed on rolled steel supports above the boiler-house floor at a suitable height, and furnished with the following fittings:—

One 1-in. flange for cold water supply.
One ¾-in. equilibrium ball valve.
One 1½-in. flange for delivery pipe from automatic pump and receiver.
One 1½-in. internal standpipe, with strainer 4 in. above bottom of tank, and external flange for suction pipe of boiler feed-pump.
One 1½-in. flange on bottom for wash-out pipe.
One 1-in. flange for overflow pipe.
One 2-in. flange on top for vent pipe.
One set of water gauges.
One altitude gauge, on the dial of which may be read the exact depth of water contained in the tank, fixed on the wall of boiler-house, and this gauge is connected with the tank by a ½-in. diam. pipe.

Storage Tank.—A cold-water storage tank, capacity 600 gals., of $\frac{3}{16}$-in. steel plate, is

fixed on rolled steel supports over the store next the engine-room. It has a loose cover of steel in two parts, and the following fittings :—

One 1½-in. flange for cold water supply.
One 1½-in. equilibrium ball valve.
One 2½-in. internal standpipe, with strainer 6 in. above bottom of tank, and external flange for service pipes.
One 1½-in. flange for overflow pipe.
One altitude gauge with pipe and connexions, as provided for boiler feed tank.

Blow-off Sump.—In the yard to the left of the boiler-house, a cast-iron blow-off sump is placed in a brick pit, the sump being 3 ft. deep by 2 ft. diam., having a flanged top and cover secured by bolts, and jointed by means of a metallic gasket. It has a 3-in. diam. inlet flange, the centre of which is about 6 in. below the top of the sump. At the opposite side is a 3-in. flanged outlet, with an internal siphon pipe extending to about 6 in. above the bottom. At right angles to the line between inlet and outlet a 2-in. flange is provided for the connexion of a ventilation pipe.

Steam Engine.—The engine is of the vertical type, developing 12 brake horse-power when running at 230 revolutions per minute with steam at 80 lb. per square inch.

Exhaust Steam Heater.—The heater fixed in the engine-room is of the vertical type, fitted with blockings for exhaust and live steam, for circulation pipes, and for condense pipe.

Hot-Water Tank.—This tank has a capacity of 300 gals., being built of $\frac{7}{16}$-in. steel plate. It is fixed above the engine-room floor on rolled steel supports, and is provided with the following fittings :—

One supply cistern with 1½-in. equilibrium ball valve.
One 1½-in. flange for cold water supply.
Two 2-in. flanges for circulation pipes from heater.
One 1½-in. flange for ventilation pipe.
One set of water gauges.
One altitude gauge and connexions, as previously described for boiler feed tank.
One live steam heater for use when exhaust steam is not available.

Steam Pipes.—The 3-in. junction valve on each boiler is fixed with the outlet facing at right angles with the axis of the boiler, and upon the outer flange of the junction valve is fixed a special 3-in. diam. wrought-steel spring bend of sufficient length and radius to permit free expansion and contraction.* Next to each bend a 3-in. back-pressure valve is fixed, these being connected with the 3-in. outlets of a 4-in. steel collecting pipe, closed at each end with a blank flange.

The collecting pipe is fitted with a 1-in. automatic drain-valve for the removal of water while pressure is off, and connected with a 1-in. Sirius steam trap for the removal of water while pressure is on. These two fittings discharge into the condense receiver in the pump-room.

The steam mains over the boilers are supported by cast-iron pillars resting on the crown of each boiler, the flanged bases of the pillars being curved to fit the circumference of the boilers; and the tops of the pillars are adjustable with a concave curve to fit the pipes.

From the left-hand end of the collecting pipe, a 3-in. steam main, with stop-valve, is carried as far as the entrance to a pipe conduit near the pump-room, this conduit accommodating a steam main which runs for a distance of some 400 ft. to the adjacent buildings.

From the right-hand end of the collecting pipe a 3-in. steam main, with stop valve, is carried into the engine-room, where a steam dryer, or separator, is fixed, together with a 1-in. Sirius steam trap and drain pipe.

Beyond the separator a 2-in. branch from the upper side of the main is taken to the steam engine. A 1¼-in. high-pressure branch, with stop valve, is taken from the main, and then come a stop valve, pressure-reducing valve, and safety valve, the waste pipe from the safety valve being connected up to the drain pipe from the steam trap of the separator, and the two drain pipes merging into one of 1¼ in. diam., which discharges into the condense receiver in the pump-room.

A 1-in. branch on the low-pressure main beyond the reducing valve supplies a ½-in. pipe carried to the live steam heater in the hot-water tank, and a ¾-in. pipe to the exhaust steam heater, each of these pipes having a stop valve of corresponding size. By means of the last-mentioned pipe the exhaust steam heater is rendered available for use as a live steam heater at times when the engine is not running.

Some of the exhaust steam from the engine is used for heating a drying chamber, and the balance enters the water heater through a branch pipe on the exhaust main. A by-pass arrangement is provided so that all the exhaust may be delivered either to the drying chamber heater or to the exhaust steam heater, or discharged direct to the atmosphere. The by-pass valves are designed so that they will open automatically under a

* In cases where this arrangement is inconvenient, expansion joints or pipes must be used.

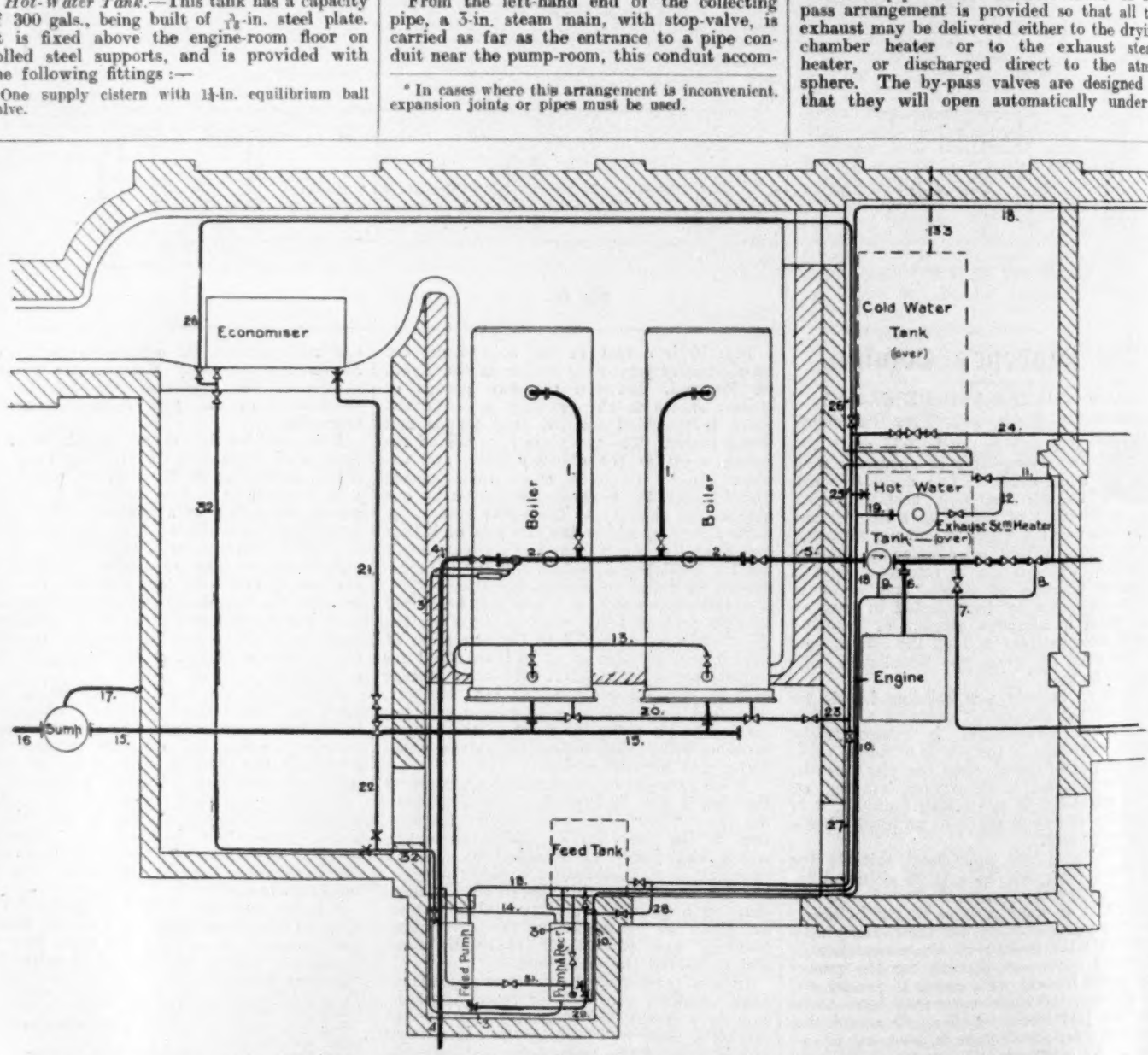


Fig. 60.

1, 1. Steam from boilers.
2. Steam collecting main.
3. Drain from steam main.
4. Steam main to adjacent buildings.
5. Steam main to engine room.
6. Steam branch to engine.
7. High-pressure steam branch.
8. Drain from safety valve.
9. Drain from steam dryer.
10. Combined drain from (8) and (9).
11. Low-pressure steam to heater and hot-water tank.
12. Steam branch to heater.
13. Steam supply to pumps.
14. Steam branch to automatic pump.
15. Blow-off from boilers.
16. Discharge from blow-off sump.
17. Vent from blow-off sump.
18. Exhaust from pumps and engines.
19. Exhaust steam to heater.
20. Boiler feed main.
21. Delivery from economiser to feed main.
22. Delivery from feed pump to feed main.
23. Cold water connexion to feed main.
24. Cold water to laundry.
25. Cold water to boiler-house and hot-water tank.
26. Cold water to economiser.
27. Cold water to feed tank.
28. By-pass to feed tank down pipe.
29. Down pipe from feed tank to pumps.
30. Delivery from automatic pump to feed tank.
31. Branch from (30) to feed pump delivery.
32. Delivery from feed pump to economiser.
33. Overflow from cold-water tank.

pressure of 5 lb. per square inch, the object being that the exhaust steam shall always be able to gain access to the outer air, even if all the valves should be closed simultaneously.

Water resulting from the condensation of exhaust steam is delivered from steam traps and discharged through suitable pipes to the nearest drains, instead of being collected in the condense receiver, the object being, of course, to avoid the risk of grease in the feed-water for the boilers. Circulation pipes are connected between the exhaust steam heater and the hot-water tank, but these do not require further notice, as the tank is not used for boiler feeding purposes.

From two ¾-in. flanges riveted on the boilers a ¾-in. steam pipe is taken to the pump-room, where ½-in. branches are carried to the feed and automatic pumps. A ¾-in. stop valve is provided close to the flange on each boiler. This arrangement permits the pumps to be used when the main steam valves are closed.

Blow-off Pipes.—The blow-off main extends along the pit in front of the boilers, and is supported on brick pillars. The pipe is of cast-iron, 3 in. diam., with flanged joints. The right-hand end of the blow-off pipe is terminated with a blank flange, and the other end is continued through the wall of the boiler-house, and connected up to the blow-off sump. Suitable outlets are provided for the connexion of the pipes from the blow-off cocks of the boilers.

On the 3-in. outlet flange of the sump a short piece of flange and socket cast-iron pipe is fitted, from which connexion is made with the nearest drain. Commencing at the third flange on the sump, a 2-in. ventilating pipe in galvanised wrought-iron is carried up the outer wall of the boiler-house, and finished with a galvanised weather cone at a height of about 4 ft. above the eaves.

From the blow-off cock of the economiser a pipe is taken to the nearest drain.

Waste Pipes for Valves and Cocks.—All cylinder cocks on the pumps and cocks on the boilers are fitted with copper drain pipes carried down to 3 in. above floor level, and delivering over gullies where these are available.

Exhaust Steam from Pumps.—Exhaust steam from the feed pumps is collected in an exhaust pipe of 1 in. diam., and delivered into the exhaust pipe from the steam engine. Drip pipes fitted on the exhaust pipes are carried to the nearest drains.

Boiler Feed Main.—The feed main for the boilers, of 2 in. diam., is carried above the front of the boilers with vertical branches of 1½ in. diam. to the feed valves of the boilers, each branch being controlled by a stop valve next to the outlet on the main A 2-in. by 1½-in. by 1½-in. T-piece is fitted at the left-hand end of the feed main, the 1½-in. outlet being connected with the delivery pipe from the economiser, and the 1½-in. outlet with an alternative delivery pipe from the feed-pump. The right-hand end of the feed main is connected up to a 1½-in. cold water supply pipe from the storage tank. Stop valves of suitable sizes are provided and fixed at each of the above-mentioned outlets and finishing points.

Water Pipes.—From a stop valve on the cold water storage tank a 1½-in. main is carried direct to the boiler feed main.

From this 1½-in. main a 1-in. branch, with stop valve at each end, is connected up to the economiser, and a 1-in. branch, with stop valve, to the boiler feed tank. A down pipe, with a stop valve, is carried in 1½ in. diam. from the feed tank to the boiler feed pump, and a by-pass arrangement between the cold water branch and the feed tank down pipe, so that the boiler can be fed directly from the cold-water tank, if desired, at any time. The down pipe can also deliver into the automatic pump receiver if required.

A 1½-in. delivery pipe from the automatic pump and condense receiver is carried up to the feed tank, with an alternative branch joining the delivery pipe from the boiler feed-pump. Stop valves are fitted so that either branch may be used in case of need.

A 1½-in delivery pipe, with stop valve, is taken from the boiler feed-pump to the economiser and connected up to the inlet valve, and a branch, with stop valve, is taken from the delivery pipe direct to the boiler feed main for alternative use.

A 1½-in. overflow pipe is fitted to the cold-water storage tank discharging outside the building.

From the boiler feed tank, a 1½-in. wash-out pipe, with stop valve, is carried to the nearest drain, a 1-in. overflow pipe to the outside of the building, and a 2-in. vent pipe through the roof to a height of 4 ft. above the eaves, and finished with a galvanised weather cone.

From the outlet valve of the economiser a 1½-in. delivery pipe is carried to and connected with the stop valve at the end of the feed main.

Identification of Pipes and Valves.—All valves in the boiler-house are furnished with labels stating the use for each valve, each label bearing a distinctive number. A framed and glazed diagram shows all pipes and valves in connexion with the boiler-house, the use of each pipe and valve being clearly stated, and the valves indicated by their distinctive numbers.

The foregoing particulars and the explanatory plan have been placed at our disposal by an engineer of much practical experience in the design of steam-power plants, and we believe they will serve the purpose of making clear, better than a lengthy collection of abstract rules and maxims, the manner in which the pipe systems of a boiler-house and connected departments should be arranged to provide for uninterrupted service under all circumstances.

GENERAL BUILDING NEWS.

ST. SIMON'S CHURCH, PLYMOUTH.—The foundation-stone of the Church of St. Simon, Plymouth, was laid on the 8th inst. The plan of the new church will be based on the Devonshire type of triple aisles, having a nave 89 ft. long, and chancel 42 ft., the total width of interior being 58 ft. There will be accommodation for about 750, including the choir. The chapel and organ will be on the north and south sides respectively of the choir. Advantage will be taken of the sloping ground to provide clergy and choir vestries, as well as heating chamber and blowing-engine-room, in an undercroft, the wardens' vestry and the church being approached therefrom by an ample staircase. Local stone will be used for the walling and mein groins, with free stone dressings The architect is Mr. Harbottle Reed, of Exeter. Messrs. Wakeham Brothers provided the foundation-stone and made the arrangements for the laying ceremony.

BAPTIST CHAPEL, CARDIFF.—The opening services were held recently in connexion with a Baptist mission station at Cathays, close to the Gladstone Council Schools. The scheme when complete will include a large chapel, school, and classrooms. The part now erected is a school-chapel to seat about 450, with two small galleries over transepts so designed that the lower part can be divided into classrooms by movable partitions. The back portion of the building is divided into classrooms, three being on the ground floor and three on the first floor. The building has been designed by Mr. W. Beddoe Rees, Cardiff, and erected by Messrs. E. R. Evans & Brothers, contractors, Cathays.

SCHOOL, CARDIFF.—The Lord Mayor of Cardiff recently opened the new Allensbank Council Schools, in Llanishen-street. The new schools are situated upon a site about 1¼ acres in extent. The plans were prepared by Messrs. Veall & Sant, architects, to provide accommodation for 400 boys, 400 girls, and 400 infants, together with a caretaker's house, etc., and at the end of 1903 the contract was let to Messrs. Lattey & Co., Ltd., at 14,831*l.* 12*s.* 3*d.* The boys are accommodated on the first floor of the two-story block to the east of the site, there being a central hall, 57 ft. by 28 ft., approached by a staircase from the main entrance in Llanishen-street, with a similar staircase from the playground at the rear. Around the hall are grouped the classrooms, of which there are eight—six for fifty scholars, one for sixty, and one for forty. The girls' department on the ground floor is practically a duplicate of the boys' department, and the infants' department is planned on the same principle.

CLUB PREMISES, WIGAN.—A new pavilion has been erected by the Wigan Bowling Club at New Lodge, Wigan-lane. The work was carried out under the superintendence of the architects, Messrs. Heaton, Ralph, & Heaton, by Mr. D. A. Ablett, of Wigan.

LAMBETH MUNICIPAL BUILDINGS.—At the meeting of Lambeth Borough Council last week the General Purposes Committee reported having received a communication from the architects for the new municipal buildings to the effect that they anticipated that the quantities would be ready by the 18th inst., after which date copies would be ready for tenderers. It was incumbent, therefore, upon the Council to decide by what method, whether open or select, tenders should be obtained for the erection of the buildings. The ordinary practice of the Council was to throw contracts open for public tender, and the Standing Orders provide that tenders for the execution of works exceeding 100*l.* estimated cost shall be advertised "unless otherwise ordered by the Council." In the present case the committee were of the distinct and unanimous opinion that a departure should be made from the ordinary practice, and that it would be in the best interests of the Council for the tenders to be invited upon an approved list of selected builders. They were influenced in arriving at this opinion by the special character and magnitude of the work involved in the contract, and also—and perhaps more especially—by the fact that the usual experience in large contracts is that the best firms will not enter for public competitions, inasmuch as they are not disposed to waste their time in getting out the necessary figures on the mere chance only of obtaining the work. When the construction of the proposed embankment at the wharf was first under consideration in February, 1903, the Council then departed from the usual practice and asked six selected firms to tender for the work. With regard to the actual selection of the firms, however, the committee did not think the precedent to which reference has just been made should be strictly followed. On that occasion the committee concerned published in its report the names and addresses of the six particular firms from whom they recommended tenders should be asked; but in the present case there are reasons, which would doubtless occur to the Council, why the selected list should not be openly published. The committee had carefully gone into this matter, and had unanimously agreed upon a list of twenty-four builders of high reputation, whom, should the Council adopt the report, the committee proposed to ask to submit tenders, but whose names they propose to regard as confidential until the tenders have been duly delivered. This is the course which not only the architects but also Mr. Hare, the assessor, strongly advised the Council to adopt. The committee proposed that tenders should be delivered not later than noon on Thursday, December 21, and formally opened and initialled in accordance with the Standing Orders at the meeting of the Council on that day; and, unless there should be unforeseen difficulties in the way, the committee hoped to be in a position to bring up a recommendation to the Council at its first meeting after the Christmas recess, on January 18, 1906. The report and the committee's recommendations were adopted, and it was further resolved, in order that financial matters might be placed in train, that application be made to the London County Council for its consent to a preliminary loan of 35,000*l.*, which would be sufficient to satisfy outgoings under the contract for some time.

HOTEL, SANDSEND.—A new hotel is in course of erection at Sandsend, from the designs of Mr. F. A. Tugwell, architect, of Scarborough. The builders are Messrs. John Braim & Sons.

LIBRARY, CHADDERTON.—Mr. A. R. Groome writes to say that the architects of this building were himself and Mr. Grant, under the style of "Groome & Grant," not Mr. Lindsay Grant alone.

COUNTY COURT AND INLAND REVENUE OFFICES, CARDIFF.—New County Court and Inland Revenue offices, adjoining the post-office, Westgate-street, Cardiff, have just been erected. The architect of the building is Mr. H. N. Hawks, his Majesty's Office of Works, London, and the contractor is Mr. James Allan.

THEATRE, CARDIFF.—A new theatre is in course of erection at Cardiff. The work is being carried out from the designs of Messrs. Ernest Runtz & Ford, architects, by Messrs. James Allan & Sons, contractors.

BRANCH LIBRARY, EDINBURGH.—The Morningside branch of the Edinburgh Public Library has just been opened. The building was designed by Mr. Morham, the City architect, and cost about 6,000*l.*

RAILWAY STATION, FENTON.—A new railway station has been opened at Fenton. The work was planned in the office of the North Staffordshire Railway Company's Engineer, Mr. Crosbie-Dawson, and has been carried out by Mr. T. R. Yoxall, contractor, of Stoke, under the supervision of Mr. Adams.

FOREIGN.

FRANCE.—The bust, in bronze, of Jules Cousin who was the founder and organiser of the historic collections of the Paris Municipality, has been placed in the Carnavalet Museum. The bust is the work of M. Chas. Jacquot.——A nephew of the late M. Henner has offered to the city of Paris a certain number of works by the eminent painter, including the "Nymphe Endormie," which figured in the Salon of 1903. The pictures will be placed in the Petit Palais in the room next to the Ziem collection, where will be placed also the bust of Henner by M. Dubois.——The demolition of the Galerie des Machines at Paris is to be commenced shortly; it was built, as will be remembered, from the plans of M. Dutert, to form the machinery gallery of the 1889 exhibition. ——The new hospital for contagious diseases, at Aubervilliers, is shortly to be opened. It is

constructed according to the most recent hygienic principles, and has cost two million and a half francs.——A new post office establishment is to be built at Cahors, at an estimated cost of 92,000 francs.——The ancient Château de Varennes has been destroyed by fire, along with the Gobelins tapestries and furniture which it contained.——The municipality of Douai, in co-operation with the Government Department of Fine Arts, intend to undertake the restoration of the fine belfry of the Hôtel de Ville, which dates from the XIVth century, and is scheduled as a "Monument Historique."——At Besançon, next year, a retrospective or historical art exhibition of the region of the Jura is to be organised. In this will be included a large collection of original drawings by Fragonard, Vanloo, Boucher, and others, left to the town of Besançon a century ago by the architect Paris.——The works for the enlargement of the Palais de Justice at Paris will be commenced shortly. The new buildings, on the Quai des Orfèvres and on the site of the Rue de la Sainte Chapelle, will be carried out under the direction of M. Tournaire, the architect.——A new Boys' School is to be built at Draguignan (Var), at a cost of 612,000 francs.——A monument is to be erected shortly in the Champs Elysées at Paris, near the Petit Palais, to the poet Louis Ratisbonne. The sculptural portion will be the work of M. Soldi-Colbert, and the architectural portion from the design of the late M. Scellier de Gisors.——The death is announced of M. Le Voisvenel, architect; also of the painter Henri Thierôt, a member of the Société des Artistes Français (Old Salon). The death is also announced, at the age of 63, of M. Alfred Rambaud, who, about a dozen years ago, was Minister of Public Instruction and Fine Art.

EAST AFRICA.—A Nairobi correspondent states, "The local building trade is very brisk.——The Government intend putting up some magnificent public buildings next year, over 40,000*l.* being on the estimates for that purpose."

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. Septimus Warwick and H. A. Hall, architects, have removed their offices from 26, Theobald's-road to 13, South-square, Gray's Inn, W.C.

MEMORIAL SCREEN, HATFIELD BROAD OAK, HARLOW.—The Bishop of Colchester recently dedicated an oak screen which has been placed in the Church of St. Mary at Hatfield Broad Oak as a memorial to the late Mr. George A. Alan Lowndes. The screen is across the entrance to the chancel, and has been designed by Mr. Herbert I. Ibberson, architect. The erection has been carried out by Messrs. J. L. Glasscock, of Bishop's Stortford, and the carving is the work of Mr. F. A. Markham, of London.

BEDFORD ESTATE, BLOOMSBURY.—In connexion with the enlargement, now in progress, of the British Museum on the site of the south side of Montague-place, the Duke of Bedford has caused a scheme to be prepared for the further improvement of his property in that quarter. The proposals embrace the laying out of a street, 130 ft. wide, from Montague-place, through Keppel-mews and Keppel-street, to Torrington-square, and of another thoroughfare, 40 ft. wide, between Gower-street and Torrington-square, to lead northwards from Montague-place. Some new hotels will be erected as part of the projected improvements, and sites have been marked, we gather, for the erection of hotels in Gordon-street and Southampton-row.

ROODSCREEN, LANREATH.—We are informed that the restoration of this screen was carried out under the direction of Mr. Bodley, R.A., not of Mr. T. Rogers Kitsell, as stated under the head of "Illustrations" last week. The drawing was sent to us by Mr. Kitsell, hence we concluded that it was his work.

SHEFFIELD BUILDING TRADES EXCHANGE AND CLUB.—The annual meeting of members of this exchange was held on Tuesday evening last week. The accounts for the year ended August 31 were presented, along with the report of the committee, and on the motion of Mr. Biggin, seconded by Mr. Cook, they were adopted. Mr. J. Biggin was re-elected President, Messrs. A. J. Forsdike and J. Longden Vice-Presidents, and Mr. T. D. Cook Treasurer. Messrs. T. Masterton, P. Molloy, W. H. Ibbotson, E. Dyson, and A. Beresford were elected to fill the vacancies on the committee.

MIDLAND REAFFORESTATION ASSOCIATION.—The Association, of which Sir Oliver Lodge is President, have established branches at Wednesbury, Walsall, and Old Hill in the Black Country. In the course of last autumn they formed a small model plantation at Old Hill, and a similar plot of six acres at Wednesbury. They are now laying out other plantations at King's Hill, Wednesbury, and at Old Hill, and a wood of 42 acres at Moxley. The Association have, thus far, contracted to carry out the works, preparing and planting the soil for the owners at a charge of 5*l.* per acre. With their appeal for subscriptions they have published a plan of "Parks and Spoil Banks, Black Country, 1904," showing a waste area of nearly 30,000 acres, of which they estimate that about one-half could be profitably planted forthwith.

SIR WILLIAM HARCOURT MEMORIAL.—It is stated that Mr. Waldo Story hopes to complete his marble statue of the late Sir William Vernon Harcourt in time for its erection in the members' lobby of the House of Commons during the Whitsuntide recess. The figure is life-sized, and, as in the case of the statue which has just been set up to Mr. Gladstone, is represented as wearing the robes of the Chancellor of the Exchequer, one of the few of our official costumes which are adapted to the purposes of sculptured portraiture.

NEW BOROUGH HALL, HOLBORN.—At their meeting held on November 8, the Holborn Borough Council (Mr. Fitzroy Doll, alderman and late mayor of the Borough, presiding) adopted a report of their Establishment Committee to expend a sum of about 15,000*l.* in acquiring a site for a new Borough Hall, and resolved to devote a sum of 15,000*l.*, or thereabouts, to the erection of the structure, with 5,000*l.* for furniture and equipment. The Borough Council will consider the question of disposing of the Holborn Town Hall, at the corner of Gray's Inn-road and Clerkenwell-road, which was built some years ago after the plans and designs of Mr. H. L. Florence. Some of the Council's property in High Holborn forms the site of the proposed new offices.

SURVEYORS' INSTITUTION.—Mr. G. P. Knowles, F.S.I., has been elected Chairman of the Committee of Junior Meetings of the Surveyors' Institution for the coming session. Mr. Knowles was chairman last session also.

THE PLUMBERS' COMPANY.—At the meeting of the Court of this Company at the Saddlers' Hall, on the 15th inst., the Freedom and Livery of the Company were presented to Viscount Selby, of Carlisle, as a mark of appreciation of his high character and eminent services in the high office of Speaker of the House of Commons. Lord Selby was afterwards the guest of the company at dinner to meet the Lord Mayor and Sheriffs. Among those present were the Master of the Company, Mr. W. D. Caröe, who presided, Sir Richard Jebb, M.P., Sir Aston Webb, Sir Melvill Beachcroft, Chairman of the Metropolitan Water Board; Mr. John Belcher, President of the Royal Institute of British Architects; Mr. G. Laurence Gomme, Dr. G. B. Longstaff, and Mr. F. Brindley, President of the United Operative Plumbers' Association of Great Britain and Ireland. In a speech in the course of the evening, Mr. Caröe, speaking with reference to the work of the Company, said that skill of hand and honesty of purpose were what they wished to teach and impress; and when the public heard of the national registration of plumbers, or came across a man who held the current certificate of the Company, they should understand that these were the qualities the Company wished should be secured to the public. They had created the organisation and the means of creating a high standard. It was for the plumbers themselves to come forward in still greater numbers to profit by it, and it was for the public at large, and more particularly the architects and those directly concerned in building, to make use of the power of protection which the Company had put into their hands. If the public would learn to protect itself, their cause, as a Company, was won.

Legal.

POINT OF LAW UNDER A BUILDING AGREEMENT.

THE case of *in re* an arbitration between George James Furness and the Willesden Urban District Council came before Mr. Justice Farwell in the Chancery Division on the 11th inst, on a special case stated by the arbitrator for the opinion of the Court on a point of law whether the building agreement, afterwards referred to, was or was not still binding upon the parties in regard to lands other than lands comprised in a notice to treat.

The facts were shortly these:—On February 25, 1902, a building agreement was entered into between Messrs. G. J. & M. B. Furness (the landlords) on the one part, and Messrs. G. C. Freeman and A. S. Barber (the tenants) of the other part. By the agreement the tenants agreed to erect forty-nine houses on the estate of the landlords at a cost per house of at least 400*l.*, the houses to be used as private residences. As often as any houses were built the landlords had to grant leases to the tenants for ninety-nine years from March 25, 1902, at a ground rent of 8*l.* a year per house, subject to the usual covenants in such cases. The landlords were to finance the tenants in erecting the houses to the amount of 270*l.* per house, and the agreement was not to operate as a lease of any part of the estate until a lease of such part was executed. Mr. M. B. Furness' interest under the agreement became subsequently vested in Mr. G. J. Furness. The Willesden Urban District Council, as the educational authority of the district, gave Mr. G. J. Furness notice to treat on March 24, 1904, for certain of his lands specified in the schedule to the notice for the purpose of erecting a Board School thereon. About one-fourth of the land comprised in the building agreement was described in the schedule to the notice to treat, and at the date of the notice to treat the tenants had built a certain number of houses. Mr. G. J. Furness claimed compensation under the notice to treat, and the matter went to arbitration. Mr. Furness contended before the arbitrator that by reason of the acquisition by the Council of the lands comprised in the notice to treat, the building agreement with regard to all the lands to which it related was determined as from the date of the notice to treat, and that the parties to it were discharged from all obligations under it. The Council denying that this was so, the arbitrator stated the case so that the opinion of the High Court might be obtained on the point.

At the conclusion of the arguments of counsel his lordship decided that as between Mr. Furness and the Council the building agreement was still binding on the parties to it.

Mr. Eve, K.C., Mr. C. E. Jenkins, K.C., and Mr. Stone appeared for Mr. Furness; and Mr. W. H. Upjohn, K.C., and Mr. Bartley Dennis for the Council.

BUILDERS AND ERRORS IN WAGES.

AT Lambeth County Court on Wednesday, before Judge Emden, W. J. Mitchell & Son, builders, High-street, Dulwich, were sued by Arthur John Page, bricklayer, for 12*s.* 11*d.* wages due. The defendants counter-claimed for 18*s.* 5½*d.*, which they alleged was overpaid to plaintiff by a clerical error—viz., 221½ hours' wages being credited to him at 11½*d.* instead of 10½*d.*, the usual rate in the trade.

Mr. Chester Jones appeared for the plaintiff.

Plaintiff said that the last money due to him, 12*s.* 11*d.*, had been stopped by defendants on the allegation that they had just discovered that he had been overpaid at the rate of 1*d.* the hour. On the first occasion on which he received payment at the rate of 11½*d.* the hour, he drew the attention of the foreman to the matter, but the foreman said it was all right. The work at which he was engaged was at some houses, and he was working by himself with the assistance of two labourers. Under these circumstances it was usual for men to be paid extra. It was also usual for men to be paid extra when working on flying scaffolds, as he was in the case in question.

On behalf of the defendants witnesses were produced who swore that it was the invariable practice to pay bricklayers 10½*d.* per hour, unless special arrangements were made. In this case plaintiff admitted that no special arrangements were made. The over-payment was solely through a clerical error.

Judge Emden held that defendants had made out their case that wages should be at 10½*d.* per hour, unless special arrangements were made beforehand. However, as the defendants had not put in their counter-claim until the last moment, and it had only been admitted by the courtesy of the plaintiff's legal advisers, he would give the costs to plaintiff. Judgment would be for plaintiff on the claim, and for the defendants on the counter-claim.

STREATHAM EXCAVATION CASE.

IN the Chancery Division on the 10th inst. Mr. Justice Warrington had before him the action of Gouldsmith *v.* Wilson, an action by the plaintiff, the owner of Shirley House, Leighham Court-road, Streatham, for an injunction or other relief against the defendant, the owner of the Highview Estate, Streatham.

Mr. Rowden, K.C., and Mr. Keats appeared for the plaintiff; and Mr. Ashton Cross for the defendant.

Mr. Rowden said the plaintiff in this case complained of the removal and deprivation by the defendant of the lateral support to plaintiff's land. The plaintiff and the defendant owned adjoining estates at Streatham, and in order to develop his estate the defendant had excavated to a considerable depth right up to the boundary of the plaintiff's land. Defendant had practically admitted all the statement of claim.

Mr. Ashton Cross said that, with a slight alteration in the statement of claim, he was prepared to submit to it.

Mr. Rowden said that the defendant had built a sort of retaining wall along the boundary of the plaintiff's land, and that was insufficient.

Mr. Ashton Cross said his client was going to take down the existing retaining wall and erect another.

His Lordship then entered judgment for the plaintiff with costs, and granted the plaintiff liberty to apply.

A COMMON LODGING-HOUSE.

IN pursuance of the authority vested in Metropolitan Police Magistrates by the London County Council Powers Act of 1902, Mr. Fenwick sat specially at the Bow-street Police Court on Saturday last week to hear an appeal by Mr. John Walters, of Newton-street, against the refusal of the Council to renew his common lodging-house licence in respect of buildings in Fulwood's-rents (a turning out of High Holborn) and Castle-court. Mr. F. Gover appeared for the appellant.

Mr. Bodkin, who conducted the case for the respondents, said that the houses in question adjoined each other and were only separated by doors, which were kept closed. Up to June of

this year one portion of the block thus formed was licensed as a common lodging-house for 118 women. The other portion was licensed for 104 men. At the date mentioned the renewal of the licence was refused on the ground that the building was not suitable for the purposes of a common lodging-house. The premises were at least 200 years old, and were mainly composed of wood. The staircases were dark. The rooms on the same floors were on different levels. There were small narrow doorways and small windows. In fact, it was the most mixed-up set of buildings he had ever seen, and he felt quite at a loss for suitable words in which to describe them. The place was like, in fact, a rabbit warren with little rooms and dark corners, and if a fire occurred while it was used as a common lodging-house something too terrible to think of must happen, as everything connected with the building was as dry as tinder. The women's kitchen was 36 ft. long, and until recently was always crowded. It was insanitary. Women dressed and undressed in the kitchen, and cooked their food in the same place. There was little natural light and scarcely any air. The men's kitchen was in the basement. It was almost dark, and even in the daytime it had to be illuminated by means of four gas jets. In the kitchen there was a huge fireplace with an exceptionally large chimney, which was supposed to have enabled Jack Sheppard to escape from Bow-street runners who were trying to bring him to justice. In the event of fire the men and women would have to escape by crawling over a flat roof between their respective quarters. He (Mr. Bodkin) suggested that the magistrate should inspect the premises and see their condition for himself.

Mr. S. Gamble, second officer of the Metropolitan Fire Brigade, said that, so far as he could judge, the building was at least 200 years old. At any rate, it was worn out, and had been worn out for a long time. Owing to the peculiar construction of the place smoke (which was often more feared than fire) was likely to permeate the building before flames were discovered. It would be a very difficult building to escape from in case of fire, one reason being that it was chiefly composed of wood.

The inquiry was adjourned to enable the magistrate to inspect the building in question.—*Morning Post.*

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

22,563 of 1904.—J. W. WADKIN and D. J. JARVIS: *Wood-working Machines.*

This relates to a wood-working machine, and consists of centrally-pivoted counter-balanced arm in which the cutter spindle head is carried, means for locking said arm on a dead horizontal plane, means for locking said arm to any desired inclination and means including a crank or other lever action for moving the arm to a definite degree of inclination, where it is self-locking.

22,590 of 1904.—A. H. BARKER: *Apparatus for Heating Water and Circulating the Heated Water.*

This relates to an apparatus for heating and circulating the heated water, and comprises a so-called expansion tank or reservoir situated at or about the highest part of the apparatus, a pump, a system of circulating pipes leading from the bottom of said tank or reservoir to said pump, and a rising main or pipes leading from said pump to said tank or reservoir, the said expansion tank or reservoir containing a series of perforated trays, and a steam pipe supplying steam at or about atmospheric pressure into said tank at one side of the same, the exhaust escaping at the opposite side.

22,677 of 1904.—J. M. NICHOLLS: *Ventilators for Windows and other Openings, Meat Safes, and other Purposes, also as Window Blinds.*

This relates to a ventilator for windows and other openings, and consists of a double frame and a middle frame, each covered with a finely perforated material, for covering the ventilating opening, and for filtering the air.

23,485 of 1904.—L. STREULI: *Apparatus for use in Manufacturing Mosaic Tiles, and the like.*

This invention relates to an artificial stone press, and consists of an intermittently rotating press table carrying moulds, in combination with an upper frame arranged above the press table, and provided with transverse partitions, dividing it into compartments corresponding to the mosaic to be formed, a bottom frame with transverse partitions also dividing it into similar compartments, flexible partitions connecting the partitions of the upper frame with those of the bottom frame, and means for lowering the bottom frame into an empty mould on the press table, and raising it again after the mosaic material has been deposited on the bottom of the mould.

27,753 of 1904.—E. GOBBE: *Rotary Kilns for Cement Making.*

This relates to a rotary kiln for burning cement-making material, and consists in the combination of a gas producer so arranged as to receive the burnt hot cement-making material, to which coal is added in suitable quantities for the operation of the kiln, this coal being burned by a mixture of steam, or steam and air, so as to produce gas, giving a more intense heat than the gas from ordinary producers owing to the calories supplied to the gas by the hot cement-making material.

27,817 of 1904.—A. E. WYNN: *Ventilation of Water-closets.*

This relates to water-closets having an air inlet or inlets to the basin provided close beneath the seat, and air outlets from the basin to a ventilating pipe or passage, and is characterised by the provision of a deflecting rim or flange opposite said inlet or inlets on the inner side of the rim of the basin, and the arrangement of air outlets mainly near to, but also at some distance above the bottom of the pan or basin, whereby the ventilating air current through the basin is deflected away from the user, and traverses the whole of the basin, and provision is also made for avoiding any suction of the water up the outlet ventilating passage of the basin.

27,972 of 1904.—P. KEMP: *Swinging Window Sashes.*

This invention relates to window sashes of the kind that are swung inwards on their frames for the purpose of cleaning the outer side of the glass from within an apartment, and consists of a window sash pivoted by means of a hinge part to a vertical rod secured on the batten rod in such a manner that the window may be raised to a limited extent, and when so raised a plate or the cross rail of the sash is brought above the level of a corresponding shelf or angle plate projecting from the batten rod, so that when the window sash is swung inwards its weight is in part supported by the plate on the rail resting on the shelf plate.

8,019 of 1905.—H. ALTY: *Dies for Making Bricks, Tiles, and the like.*

This relates to dies for making bricks, tiles, and the like, and consists in making them at the larger end where the clay enters, with rounded or concave corners, and these corners arranged to diminish and gradually become more acute towards the front or smaller end of the dies, until finally at the front, where the clay leaves the dies, they become sharp rectangular corners.

15,189 of 1905.—GANZ & CO.: *Retaining Device for Automatically Rising Closet Seats.*

This relates to a retaining device for automatically rising closet seats, and is characterised by having the rising seat held fast by a bolt or other stop which so co-operates with the closet door that the seat is released on opening or closing of the said door.

16,052 of 1905.—A. HOLTZBEUER: *Top for Chimneys, Ventilators, and the like.*

This relates to a top for chimneys, ventilators, and the like, and consists in making such top in the form of a flexible tube, which tube, owing to its flexibility, bends more or less from its original position, under the lateral pressure of the wind, and as the wind ceases resumes its original position.

19,380 of 1905.—J. I. MOSS: *Self-acting Window Locks.*

This invention relates to self-acting window locks, and consists in combination a bearing for attachment to the lower sash, a rectangular plate for attachment to the upper sash, said rectangular plate having an integral cheek, an extension of said cheek, a hole in said cheek, a sector or guide made integrally with the said rectangular plate, a shoulder on said sector or guide, a lug protruding from the rectangular plate, a hole in said lug, a pivot passing through and resting in the hole in said lug, and in the hole in the cheek, an elongated slot in the rectangular plate, which slot is bridged by the said pivot pin, a semi-circular disc suspended by the said pivot pin, and capable of a radial movement between the said cheek and the said sector or guide, said semi-circular disc having its outer half lightened and provided with strengthening ribs, and its inner portion of heavier construction than the outer portion, and a stop upon the top of said inner portion.

23,435 of 1904.—T. F. BRAIME and J. H. BRAIME: *Sanitary Buckets.*

This relates to sanitary buckets having a band or belt formed out of the surplus material of the blank of sheet metal, and in which the central portion of the blank is utilised for forming the body of the sanitary bucket, and consists in the combination with the body of the said bucket, of an abutment also formed out of a portion of the said surplus material, and the arrangement of the said abutment upon the outside of said body.

25,093 of 1904.—C. R. LLOYD: *Fencing.*

This relates to the making of barbed wire for fencing purposes, and consists in fixing independently-made barbes to the wire by clinching them thereon as and when desired.

27,097 of 1904.—J. C. BUSBY and A. E. ELMES: *Valves for Controlling Hot and Cold Water Supply to Public and other Baths, and the like.*

This relates to a combined hot and cold water supply apparatus, and comprises a pair of spring-pressed valves arranged in axial alignment within a single casing, adapted to be opened and closed in opposite directions, and provided with means for preventing their too sudden or violent closure, and cam mechanism interposed between the ends of the valve spindles, and adapted to act on the opposed ends of the respective spindles, the casing being formed in one with a central chamber in free communication with the bib or delivery pipe and communicating with the water supply inlets under the control of the valves.

28,676 of 1904.—A. T. MIRZA: *Automatic Sluice Gates.*

This relates to an automatic sluice gate, having an axis of suspension or support which increases its distance from the lower edge of the gate as the gate opens.

4,296 of 1905.—W. HALL: *Inverts or Blocks for Sewers, Pipes, and the like.*

This relates to inverts or blocks for sewers, pipes, and the like, and consists in forming the usual cavities as tunnels arched over, the arch forming the arc of a circle, or being formed of two arcs described from different centres, the piers or intermediate pieces being vertical.

5,202 of 1905.—C. A. P. TURNER and J. WUNDER: *Steel Skeleton Construction for Concrete Building.*

This relates to a concrete construction and comprises column moulds and floor beam or girder moulds, the latter supporting the floor mould and wherein all of the moulds are removable and connected to form, when filled, an integral concrete structure.

5,376 of 1905.—J. J. DUNNE: *Exits from Theatres, Factories, Hotels, and the like.*

This relates to an exit and consists of a fireproof tube or tunnel of any suitable configuration. The base or floor of the tubes or tunnels is such as to enable the occupants of a building to descend to the street in a sitting or other convenient posture, the necessary impetus assisting the descent being obtained by building the tube or tunnel at an angle of 45 deg. more or less, or at any less angle consistent with the length of the same.

5,511 of 1905.—J. SMITH: *Flushing Cisterns for Water-closets, Latrines, and the like.*

This relates to flushing cisterns for water-closets, latrines, and the like, and consists of a siphon pipe having an inner wall, which separates the outlet from the inlet passages thereof, and a hinged or loose jointing to couple said outlet passage to the discharge pipe, so that the retaining and discharging of the contents of a cistern to which they are applied may be effected without the employment of a valve.

6,040 of 1905.—J. S. OWENS and G. H. CASE: *Method of Constructing Groynes, Breakwaters, and the like.*

This relates to the construction of groynes, breakwaters, and the like, and consists of the combination of a series of reinforced concrete tiles fixed at intervals apart, and such intervals closed by reinforced concrete slabs fitted to and free to slide up or down between the tiles by means of longitudinal grooves or projections moulded upon the tiles and corresponding projections or grooves moulded upon the ends of the slabs, there being no other attachment between the tiles and slabs.

8,395 of 1905.—J. MOWLEM & CO., LTD., and E. J. BURT: *Centerings for Conduits.*

This relates to centerings for conduits, and comprises a pair of sectors hinged together at the lower end, a series of transverse struts or stretches supported upon longitudinal ledges or channels provided on the sectors, the said ledges serving to stiffen the sectors, and having stops for determining the position of the struts.

15,972 of 1905.—H. JOHN: *Cutting of Girders.*

This relates to an apparatus for cutting girders, and is characterised by two pairs of cutters of U-shape, each consisting of a driven upper and fixed lower cutter similarly arranged and adapted to co-operate with each other, and a pair of straight cutters, also comprising an upper and a lower cutter, arranged parallel to the arms of the U-shaped cutters, the last-mentioned cutters cutting the flanges and the straight cutters the webs, for the purpose of enabling the girder to be cut at both ends without being turned.

17,883 of 1905.—H. ANDERS: *Artificial Stones, Blocks, or Slabs for Building Purposes.*

This relates to artificial stones, blocks, or slabs for building purposes, and consists of any desired material, having one or more dovetail or undercut grooves, a channel passing around its edges, and provided with an impermeable layer of tar or similar material, said channel being adapted to receive a hempen or like rope impregnated with such material, and the grooves with cement to bind the centres or the like together.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

Nov. 2.—By HAMPTON & SONS (at Newbury).
Newbury, Berks.—The Shaw Estate (outlying portions), area 370 a., f. (in numerous lots).. £12,775

Nov. 4.—By WRIGHT & SCRUBY (at Cambridge).
Balsham, Cambs.—"The Queen's Head Inn" and three cottages adjoining, f. 825
"The Fox and Hounds" b.h., f. 170
Trumpington, Cambs.—Fifteen freehold building plots 594

November 6.—By BRIDGMAN & SON.
Cheshunt, Herts.—66, Crossbrook-st., f., y.r. 17*l.* 260
34 and 64, Crossbrook-st. (s.), f., y.r. 46*l.* 790
30 and 32, Crossbrook-st., f., y.r. 58*l.* 8s. 865
Waltham Cross, Herts.—High-st., "The Wheatsheaf" b.h., f., y.r. 29*l.* 8s. 1,150
261 to 171 (odd), High-st. (s.), f., y.r. 129*l.* .. 2,470
253 to 259 (odd), High-st., f., w.r. 58*l.* 10s. .. 800
186, 188, 192, and 194, High-st. (s.), f., y.r. 149*l.* 2,965
113, High-st. (s.), area 0 a. 2 r. 5 p., f., y.r. 70*l.* 1,700
Cheshunt, Herts.—1 and 2, Rowlands-fields, f., w.r. 27*l.* 6s. 220
Andrew's-la., freehold building land, 5 a. 1 r. 20 p. 520
Waltham Abbey, Essex.—20 and 21, Silver-st., f., w.r. 21*l.* 9s. 150
Waltham Cross, Herts.—1 to 20, Cecil-rd., f., w.r. 325*l.* 16s. 3,300
Cecil-rd., a piece of building land, 0 a. 3 r. 0 p., f. 190
Cheshunt, Herts.—Crossbrook-st., "The Ivies" and "Ivy House," f., y.r. 135*l.* 3,350
118, Crossbrook-st. and 0 a. 1 r. 4 p., f., w.r. 20*l.* 16s. 500
129, Crossbrook-st. (s.), f., y.r. 25*l.* 610

By ST. QUINTIN & SON.
Limehouse.—Narrow-st., "Phœnix Wharf," area 2,500 ft., f., y.r. 128*l.* 2,050

By WEATHERALL & GREEN.
Clerkenwell.—20, 21, and 22, Great Bath-st. (s.), area 1,500 ft., f., y.r. 117*l.* 2,150

By G. P. PRICE & T. V. PRICE (at Builth Wells).
Aberedw, Radnor.—"Trevaughan Farm," 209 a. 1 r. 3 p., f., y.r. 140*l.* 3,100
"Pontshoney" (residence) and "Pen-y-Garreg Farm," 83 a. 1 r. 30 p., f., y.r. 100*l.* 3,000
Llanbedr Painscastle, Radnor.—"Pencommon" holding, 19 a. 1 r. 19 p., f., y.r. 16*l.* 400

November 7.—By ANDREWS & HITCH.
Upper Caterham, Surrey.—Spencer-rd., f.g. rents 30*l.*, reversion in 97 yrs. 665

By CROFTS & CO.
Tooting.—4 and 6, Brightwell-cres., f., w.r. 46*l.* 16s. 450

By POTTERS'.
Hampstead.—Elm-row, "Elm House," f., p... 900

By E. & A. SWAIN.
Notting Hill.—23, Lansdowne-rd., f., y.r. 110*l.* . 2,025

November 8.—By BAXTER, PAYNE, & LEPPER.
Bickley, Kent.—Page Heath-la., "Queda," "The Knoll," and "Elizabeth Cottage," f., y.r. 255*l.* 2,950
Beckenham, Kent.—2 and 4, Chancery-la., u.t. 91¼ yrs., g.r. 5*l.*, w.r. 59*l.* 19s. 455
Brondesbury.—2, Christchurch-av., u.t. 67 yrs., g.r. 18*l.*, y.r. 85*l.* 630

By R. W. MANN & SON.
Leyton.—2 and 4, Abbott's Park-rd., u.t. 89¼ yrs., g.r. 12*l.*, y.r. 55*l.* 400
Homerton.—53 to 59 (odd), Sidney-rd., u.t. 54 yrs., g.r. 16*l.* 8s., w.r. 140*l.* 8s. 785

By MATTHEWS, MATTHEWS, & GOODMAN.
Kentish Town.—6, Castle-rd. (s.), u.t. 29½ yrs., g.r. 6*l.*, y.r. 48*l.* 355
64, Southampton-rd. (s.), u.t. 46 yrs., g.r. 5*l.*, y.r. 32*l.* 10s. 285

Nov. 10.—By FISHER, STANHOPE, & DRAKE.
Finsbury Park.—40, Woodberry-down, u.t. 60 yrs., g.r. 21*l.*, p. 1,650

By W. A. HEAD.
Wimbledon.—151, 153, 155, and 157, Hartfield-rd. (s.), u.t. 98 yrs., g.r. 28*l.*, y.r. 165*l.* 1,400

By G. PIERCY & Co.
St. John's Wood.—35, Hamilton-ter., u.t. 33 yrs., g.r. 2*l.*, e.r. 130*l.* 1,550

By THOMAS PEYER & MILES.
Trowbridge, Wilts.—The Silver Street Brewery and two Tied Houses, f. 5,850

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; g.r. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

MEETINGS.

FRIDAY, NOVEMBER 17.

Architectural Association.—Mr. J. A. Gotch on "Old Manor Houses." 7.30 p.m.

Royal Sanitary Institute.—Mr. J. E. Worth on "Scavenging, Disposal of House Refuse." 7 p.m.

The Institution of Mechanical Engineers.—The seventh report to the Alloys Research Committee on the properties of a series of iron-nickel-manganese-carbon alloys by Dr. H. C. H. Carpenter, Mr. R. A. Hadfield, and Mr. Percy Longmuir. 8 p.m.

SATURDAY, NOVEMBER 18.

Junior Institution of Engineers.—Visit to Messrs. Barclay, Perkins, & Co.'s Anchor Brewery, Park-street, Southwark Bridge. 2.30 p.m.

MONDAY, NOVEMBER 20.

Royal Institute of British Architects.—Mr. R. A. Denell on "American Methods of Erecting Buildings," with lantern illustrations. 8 p.m.

London Institution.—Sir William H. White, K.C.B., on "Submarines." Illustrated. 5 p.m.

TUESDAY, NOVEMBER 21.

Architectural Association Camera and Cycling Club.—Mr. Edwin Gunn on "The Southern Border Towns of Suffolk." 7.30 p.m.

Institution of Civil Engineers.—Paper to be further discussed, "On Waterways in Great Britain," by Mr. J. A. Saner. 8 p.m.

WEDNESDAY, NOVEMBER 22.

Architectural Association Discussion Section.—Mr. H. Passmore on "Village Schools." 7.30 p.m.

Edinburgh Architectural Association.—Mr. J. A. Morris on "An Old Scottish Town." Illustrated by lantern slides. 8 p.m.

Society of Arts.—Mr. F. Martin-Duncan on "The Cinematograph and its Applications." 8 p.m.

Northern Architectural Association.—(1) Opening meeting of session. Address by the President. (2) Mr. W. Milburn will exhibit a number of lantern slides illustrating buildings of architectural interest in Italy, Rome, etc. 7.30 p.m.

THURSDAY, NOVEMBER 23.

Institution of Electrical Engineers.—Colonel H. C. L. Holden, R.A., F.R.S., on "The Applications of Electricity in the Royal Gun Factory, Woolwich Arsenal." 8 p.m.

SATURDAY, NOVEMBER 25.

Royal Sanitary Institute.—A provincial sessional meeting in the Council Chamber, Town Hall, Hastings. A discussion will be opened on "Water Filtration—The Health Aspect," by Mr. A. Scarlyn Wilson, D.P.H., M.O.H.; "Pressure Filters," by Mr. Philip H. Palmer, M.Inst.C.E.; and "The Chemical Aspect," by Mr. H. F. Cheshire, B.Sc., F.I.C.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

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We are compelled to decline pointing out books and giving addresses.

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All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	7	0	per 1000 alongside, in river.		
Rough Stocks and Grizzles	1	4	0	,,	,,	,,
Facing Stocks	2	0	0	,,	,,	,,
Shippers	2	0	0	,,	,,	,,
Flettons	1	5	6	,,	at railway depôt.	
Red Wire Cuts	1	11	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,
Best Blue Pressed Staffordshire	4	1	0	,,	,,	,,
Do. Bullnose	4	6	6	,,	,,	,,
Best Stourbridge Fire Bricks	3	15	6	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers	12	0	0	,,	,,	,,
Headers	11	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	16	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamferred, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	14	0	0	,,	,,	,,
Double Stretchers	15	0	0	,,	,,	,,
Double Headers	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamferred, Squints	14	0	0	,,	,,	,,
Second Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.	

BRICKS, &c. (continued).

	s.	d.		
Thames and Pit Sand	6	9	per yard, delivered.	
Thames Ballast	5	3	,,	,,
Best Portland Cement	26	0	per ton,	,,
Best Ground Blue Lias Lime	19	0	,,	,,
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.				
Grey Stone Lime	11s. 0d.		per yard, delivered.	
Stourbridge Fireclay in sacks	27s. 0d.		per ton at rly. dpt.	

STONE.

	s.	d.		
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.	
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½	,,	,,
PORTLAND STONE (20 ft. average)—				
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1	,,	,,
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	2½	,,	,,

	s.	d.		
Ancaster in blocks	1	10	per ft. cube, deld. rly. depôt.	
Beer ,,	1	6	,,	,,
Greenshill ,,	1	10	,,	,,
Darley Dale in blocks	2	4	,,	,,
Red Corsehill ,,	2	2	,,	,,
Closeburn Red Freestone	2	0	,,	,,
Red Mansfield ,,	2	4	,,	,,
YORK STONE—*Robin Hood Quality.*				
Scappled random blocks.	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.,	,,
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,
HARD YORK—				
Scappled random blocks.	3	0	per ft. cube,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super.,	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides slabs (random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

	s.	d.		
Hopton Wood (Hard Bed) in blocks	2	0	per ft. cube, deld. rly. depôt.	
,, ,, ,, 6 in. sawn both sides landings	2	7	per ft. super. deld. rly. depôt.	
,, ,, ,, 3 in. sawn both sides random slabs	1	0	,,	,,
,, ,, ,, 2 in. do.	0	8½	,,	,,

SLATES.

In. In.	£	s.	d.	
20×10 best blue Bangor	13	2	6	per 1000 of 1200 at r. d.
20×12 ,, ,,	13	17	6	,, ,,
20×10 first quality ,,	13	0	0	,, ,,
20×12 ,, ,,	13	15	0	,, ,,
16×8 ,, ,,	7	5	0	,, ,,
20×10 best blue Portmadoc	12	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,
20×10 best Eureka unfading green	15	17	6	,, ,,
20×12 ,, ,,	18	7	6	,, ,,
18×10 ,, ,,	13	5	0	,, ,,
16×8 ,, ,,	10	5	0	,, ,,
20×10 permanent green	11	12	6	,, ,,
18×10 ,, ,,	9	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,

TILES.

	s.	d.		
Best plain red roofing tiles	42	0	per 1000 at rly. depôt.	
Hip and Valley tiles	3	7	per doz.	,,
Best Broseley tiles	50	0	per 1000	,,
Do. Ornamental tiles	52	6	,,	,,
Hip and Valley tiles	4	0	per doz.	,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	,,
Do. Ornamental do.	60	0	,,	,,
Hip tiles	4	0	per doz.	,,
Valley tiles	3	0	,,	,,
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000	,,
Do. Ornamental do.	54	6	,,	,,
Hip tiles	4	1	per doz.	,,
Valley tiles	3	8	,,	,,
Best "Rosemary" brand plain tiles	48	0	per 1000	,,
Best Ornamental tiles	50	0	,,	,,
Hip tiles	4	0	per doz.	,,
Valley tiles	3	8	,,	,,
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000	,,
Do. pressed	47	6	,,	,,
Do. Ornamental do.	50	0	,,	,,
Hip tiles	4	0	per doz.	,,
Valley tiles	3	6	,,	,,

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	... 15	0	0
Deals: best 3 by 9	13	0	0	... 14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	... 12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best.		
Battens: seconds	0	10	0	,,	10	0
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	...	10	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	...	9	10
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	,,		

WOOD (continued).

BUILDING WOOD (continued).	At per load of 50 ft. £ s. d.				£ s. d.		
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	...	5	0	0
Seconds	4	0	0	...	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	...	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	...	3	10	0
Swedish balks	2	10	0	...	3	0	0
Pitch-pine timber (30 ft. average)	3	5	0	...	3	15	0
JOINERS' WOOD.	At per standard.						
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	...	25	0	0
3 in. by 9 in.	22	0	0	...	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	...	18	0	0
Second yellow deals, 3 in. by 11 in.	18	10	0	...	20	0	0
,, 3 in. by 9 in.	17	10	0	...	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	...	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	...	12	0	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	...	22	10	0
Do. 3 in. by 9 in.	18	0	0	...	19	10	0
Battens	13	10	0	...	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	...	17	0	0
Do. 3 in. by 9 in.	14	10	0	...	16	0	0
Battens	11	0	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	...	14	0	0
Do. 3 in. by 9 in.	12	10	0	...	14	0	0
Battens	10	0	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	14	10	0	...	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	...	14	10	0
Battens	11	0	0	...	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	...	14	10	0
,, ,, 3 in. by 9 in.	12	10	0	...	13	10	0
,, ,, battens	10	0	0	...	11	0	0
Pitch-pine: deals	16	10	0	...	20	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.			
Oddments	32	0	0	,,			
Seconds, regular sizes	33	0	0	,,			
Yellow Pine oddments	28	0	0	,,			
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Dantzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	6
Small ,, ,,	0	2	6	...	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	0	...	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8	...	0	0	9
¼ in. do. do	0	0	7	...		—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	...	0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	17	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. ,, ,,	0	14	0	...	0	18	0
¾ in. by 7 in. white ,, ,,	0	10	0	...	0	11	6
1 in. by 7 in. ,, ,, ,,	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.				£ s. d.		
Rolled Steel Joists, ordinary sections	6	5	0	...	7	0	0
Compound Girders, ordinary sections	7	15	0	...	8	15	0
Steel Compound Stanchions	9	7	6	...	10	17	6
Angles, Tees, and Channels, ordinary sections	7	15	0	...	8	15	0
Pitch Plates	8	0	0	...	8	10	0
Cast Iron Columns and Stanchions including ordinary patterns	6	17	6	...	8	0	0

METALS.

	Per ton, in London. £ s. d.				£ s. d.		
IRON—							
Common Bars	8	0	0	...	8	10	0
Staffordshire Crown Bars, good merchant quality	8	10	0	...	9	0	0
Staffordshire "Marked Bars"	10	0	0	...		—	
Mild Steel Bars	8	15	0	...	9	0	0
Hoop Iron, basis price	9	5	0	...	9	10	0
,, ,, Galvanised	17	0	0	...		—	
("And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	9	10	0	...		—	
,, ,, 24 g.	10	10	0	...		—	
,, ,, 26 g.	12	0	0	...		—	
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	14	0	0	...		—	
Ordinary sizes to 22 g. and 24 g.	14	10	0	...		—	
,, ,, 26 g.	15	0	0	...		—	
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	17	0	0	...		—	
,, ,, 22 g. and 24 g.	17	10	0	...		—	
,, ,, 26 g.	19	0	0	...		—	
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	13	10	0	...		—	
,, ,, 22 g. and 24 g.	14	0	0	...		—	
,, ,, 26 g.	15	5	0	...		—	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11	10	0	...		—	
Best Soft Steel Sheets, 22 g. & 24 g.	12	10	0	...		—	
,, ,, 26 g.	14	15	0	...		—	
Cut Nails, 3 in. to 6 in.	9	10	0	...	9	15	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Per ton, in London. £ s. d.			£ s. d.
LEAD—Sheet, English, 3lb. and up.	17	17	6	... —
Pipe in coils	18	7	6	... —
Soil pipe	20	17	6	... —
Compo pipe	20	17	6	... —
ZINC—Sheet—				
Vieille Montagne ton	33	0	0	... —
Silesian	32	10	0	... —
COPPER—				
Strong Sheet per lb.	0	1	0	... —
Thin ,, ,,	0	1	1	... —
Copper nails ,,	0	0	11	... —
BRASS—				
Strong Sheet ,,	0	0	11	... —
Thin ,, ,,	0	1	0	... —
TIN—English Ingots ,,	0	1	5½	... —
SOLDER—Plumbers' ,,	0	0	7	... —
Tinmen's ,,	0	0	9	... —
Blowpipe ,,	0	0	10	... —

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d. per ft. delivered.
,, fourths	2d. ,, ,,
21 oz. thirds	3¾d. ,, ,,
,, fourths	3d. ,, ,,
26 oz. thirds	4¾d. ,, ,,
,, fourths	3¾d. ,, ,,
32 oz. thirds	5¾d. ,, ,,
,, fourths	5d. ,, ,,
Fluted Sheet, 15 oz.	3¾d. ,, ,,
,, 21 oz.	4¼d. ,, ,,
¼ Hartley's Rolled Plate	2d. ,, ,,
⅛ ,, ,, ,,	2¼d. ,, ,,
⅜ ,, ,, ,,	2¾d. ,, ,,

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1 7
,, ,, ,, in barrels	,,	0 1 8
,, ,, ,, in drums	,,	0 1 10
Boiled ,, ,, in pipes	,,	0 1 9
,, ,, ,, in barrels	,,	0 1 10
,, ,, ,, in drums	,,	0 2 0
Turpentine in barrels	,,	0 4 4
,, in drums	,,	0 4 6
Genuine Ground English White Lead	per ton	21 0 0
Red Lead, Dry	,,	20 0 0
Best Linseed Oil Putty	per cwt.	0 6 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

PUBLISHER'S NOTICES.

Nat. Tel., 613, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXVIII. (January to June, 1905) was given as a supplement with the number of July 8th.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 2d. each.

THE EIGHTY-EIGHTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, now ready.

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CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, etc., etc.

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PREPAYMENT IS ABSOLUTELY NECESSARY.

, Stamps must not be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder" by *Friday Morning's Post*.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ALNWICK.—For 2,000 yds. super. of tar paving to footpath on Denwick-lane, for the Urban District Council. Mr. Geoffrey Wilson, Town Surveyor, Alnwick:—

	Per super. yd. s. d.		Per super. yd. s. d.
South Bank Slag & Tarmacadam Co.	2 0	H. Ellison	1 5½
W. T. Wallace	1 11	North of England Asphalte Co., D. Munro, 5, Cross-street, Manchester*	1 4½
W. Thompson, Jun.	1 11		
J. Hadfield & Co.	1 10		
S. Deeley & Co.	1 7		
J. Brook	1 6		

[Surveyor's estimate 1s. 6d. to 2s.]

ARUNDEL.—For street improvements, High-street, Queen-street, Tarrant-street, Surrey-street, Short-cut, Maltravers-street, King-street, etc., for the Town Council:—

Grounds & Newton, South Tottenham* .. £1,550

BRADFORD.—For extension and additions to subway at Union Hospital, Horton-lane, for the Guardians. Mr. F. Holland, engineer and architect, 11, Parkinson's-chambers, Hurtlergate, Bradford:—

E. Smethurst	£1,900 0	J. Totty	£1,580 0
Eastwood & Bentley	1,841 10	C. Booth & Son	1,500 0
J. Moulson & Son, Ltd.	1,795 0	Balmforth & Ingham	1,450 0
F. Fielding	1,768 0	W. R. Booth	1,405 0
Normington & Proctor	1,720 0	Toothill & Balmforth	1,392 0
W. H. Holroyd	1,599 10	C. Booth & Son, Bradford*	1,372 10
J. Brown & Son	1,590 0		

CHULMLEIGH (North Devon).—For erecting a dwelling house and corn and seed store, for Mr. F. B. Mitchell. Mr. Fred F. J. Sanders, architect and surveyor, 6, Newroad, South Molton:—

E. Tabon	£846	W. Backwell, Crediton*	£749
F. A. Hooper	765		

DARTFORD.—For repairing and painting the iron roofs of the buildings at the Orchard Smallpox Hospital, Dartford, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

G. Forster	£3,800 0	R. Woollaston & Co.	£1,129 0
J. McKenzie	1,794 0	J. S. Fenn	989 0
R. Metcalfe & Son	1,595 10	W. J. Simms & Sons	965 0
G. Wales & Co., Ltd.	1,419 0	W. Hussey	950 0
Executors of J. Arundel	1,320 0	E. Proctor & Son	900 0
R. Iles, Ltd.	1,250 0	Enness Bros.	825 0
J. Ellingham & Sons	1,247 13	L. Kazak, 3 & 4, Station-road, Belvedere*	525 0
Vigor & Co.	1,146 0		
Greenhill & Markham	1,132 0		

DOWLAIS.—For shop premises, bakehouse, and alterations, Union-street, for the Co-operative Society. Mr. A. Marks, architect, Glebeland-street, Merthyr:—

S. Hawkins	£1,300 0	Evans & Waters	£836 0
J. Williams & Sons	989 15	E. Williams, Dowlais*	793 0
W. Williams	917 0		

FRIMLEY.—For pumping-station and sewage disposal works, for the Urban District Council of Frimley. Messrs. Willcox & Raikes, engineers, 63, Temple-row, Birmingham:—

Vale & Sons, Stourport £14,280

HARROW-ON-THE-HILL.—For three small brick detritus tanks (at Greenhill and Newton Farms), and for repair of Pinner-lane, for the Urban District Council. Mr. J. Percy Bennetts, Engineer and Surveyor, Harrow-on-the-Hill:—

	Greenhill.	Newton.
J. Batchelor	£167	£94
A. B. Champniss	186	84
F. Fowles	176	94
L. Eryden	159	90
Muirhead, Grey, & Matthews	186	109
Robinson & Evershed	177	99
C. Simmons, Willesden Junction*	154	86
J. Smith	180	103
H. Woodbridge	188	113

HARROW-ON-THE-HILL.—For the repair of Occupation-road. Mr. J. Percy Bennetts, Engineer and Surveyor, Harrow-on-the-Hill:—

Muirhead, Grey, & Matthews	£459	A. B. Champniss	£286
C. Simmons	434	Freer & Sons	256
J. Bachelor	362	F. Fowles, Willesden*	238

TENDERS.—*Continued on page 545.*

CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, etc., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be delivered
*INFANT SCHOOL, ST. ALBANS	Herts C.C. Education Committee ..	County Surveyor, County Surveyor's Offices, Hatfield	Nov. 20
*ENTRANCE GATES, HORSHAM WORKHOUSE	Horsham Guardians	The Clerk, 9, Carfax, Horsham	Nov. 21
Alterations at Cattle Folds at East Mains, Duffus		J. Wittet, Architect, Elgin	do.
Street Works, Beaconsfield-road, Enfield Lock	Enfield U.D.C.	R. Collins, Surveyor, Public Offices, Enfield, Middlesex	Nov. 22
Wood Screws, Nails, etc., Bolts, Nuts, and Rivets	East India Railway	C. W. Young, Secretary, Nicholas-lane, London, E.C.	do.
Stores	do.	do.	do.
Stationmaster's House at Annfield Plain	North-Eastern Railway Co.	W. Bell, Architect, Central Station, Newcastle-on-Tyne	do.
Parcel Office Extension, East End, Central Station	do.	do.	do.
Lime and Lime Ashes, etc.	Manchester Corp. Cleansing Com.	R. Williamson, Town Hall, Manchester	do.
Closets, Conversion of, to Water Carriage	Ashton-under-Lyne Sanitary Com.	J. Lome, Sanitary Surveyor, Health Dept., Town Hall-ch., Ashton	do.
Sewering Portland and York Roads	Bournemouth Town Council	F. W. Lacey, Borough Engineer, Municipal Offices, Bournemouth	do.
Sewering Muscliffe-road	do.	do.	do.
Street Works, Eccles	Eccles Highways Committee	Borough Surveyor, Town Hall, Eccles	do.
Paving (3,000 yds. cement indurated flag)	Erith U.D.C.	Surveyor to Council, Bexley-road, Erith	do.
Roadworks, Stanfield-road and Sedgeley-road	Bournemouth Town Council	F. W. Lacey, Borough Engineer, Municipal Offices, Bournemouth	do.
Workhouse Alterations	Blackburn Guardians	F. C. Ruddle, Architect, 4, King-street, Blackburn	do.
Railing, Smallbridge Recres. Ground (400 lin. yds.)	Rochdale General Purposes Com.	S. S. Platt, Borough Surveyor, Town Hall, Rochdale	do.
Villa, Station-road, Newtonmore, N.B.		A. Mackenzie, C.E., Architect, Kingussie	do.
Alterations in Stonebreaking Shed at Workhouse	Dorchester Guardians	G. H. Brown, Workhouse Master, Dorchester	do.
*SEW., DRAIN., & RD.-MAK., WKS., ISLEWORTH	Spring Grove House Estate	W. B. Hill, 81, Above Bar, Southampton	do.
School (temporary), Shotton	Flintshire Education Committee	County Surveyor's Office, Mold, Flintshire	Nov. 23
Drainage Works at Truant School, Dinas Powis	Education Committee	W. H. Dashwood Caple, Architect, Church-st.-chambers, Cardiff	do.
Fencing (oak), Hove Park	Hove Corporation	H. H. Scott, Borough Surveyor, Town Hall, Hove	do.
School Alterations, Merrywood School, Southville	Bristol Education Committee	P. Addie, Council House, Bristol	do.
Roads, Footpaths, Foundations, etc., Birtley Fell Hos.	Chester-le-Street R.D.C.	J. H. Mole, Surveyor, Chester-le-Street	do.
Acetylene Gas Lighting installation, Birtley Fell	do.	do.	do.
Water Supply Works, Smallpox Hospital, Birtley Fell	do.	do.	do.
Water Main between Herrington and Old Penshaw	Houghton-le-Spring R.D.C.	W. Morley, Surveyor, 29, Edwin-street, Houghton-le-Spring	do.
*REPAIR, TAR-PAV. AT LADYWELL WORKHSE.	Bermondsey Guardians	Clerk to the Guardians, Guardians' Offices, 283, Tooley-street, S.E.	do.
Street Improvements, Strawberry Dale	Harrogate Corporation	F. Bagshaw, Borough Engineer, Harrogate	do.
Street Works	Stockport Corporation	J. Atkinson, Borough Surveyor, Stockport	do.
Mills (Raising Fold Head Mills, Mirfield)		J. Kick & Sons, Architects, Huddersfield	do.
Tramway Maintenance	Aston Public Works Committee	G. H. Jack, Borough Engineer, Council House, Aston Manor	Nov. 24
Premises	Holyhead Co-operative Society	R. Pritchard, Co-operative Society, Holyhead	do.
School Alterths., Boys' School, Bedwell-rd., Belvedere	Erith Education Committee	W. Egerton, Architect, 12, Queen's-road, Erith	do.
Sch. Repns., Brook-st. Infnts'., Northumberind Heath	do.	do.	do.
*TECH. INST. AND SECOND SCHL., BELVEDERE	Erith Education Committee	Matthews & Coleman, 11, Old Queen-street, Westminster, W.C.	do.
Eight Hses., Spring-gdns., Burnley-rd., Sowerby Bdg.	Messrs. Shaw & Helliwell	H. Thompson, Architect and Surveyor, Post Office-chambers, Elland	Nov. 25
Incandescent Lamps	Ebbw Vale U.D.C.	R. P. Wilson, Consulting Engineer, Council Offices, Ebbw Vale	do.
Free Wiring	do.	do.	do.
Fire Goods	Leeds Corporation Gas Committee	R. M. Townsley, Gas Department, East Parade, Leeds	do.
Glazing (patent), King's Memorial Baths, Brunswick-st.	Newcastle-under-Lyme Baths Com.	J. B. Langley, Architect, 49, Deansgate, Manchester	do.
Stormwater Overflow	St. Anne's-on-the-Sea U.D.C.	The Surveyor, Council Offices, St. Anne's-on-the-Sea	do.
*NEW ELEMENTARY SCHOOL, ICKFORD	Bucks Education Committee	Clerk of Works, Education Office, Aylesbury	do.
*ALTERS. AND NEW BUILDING, WHITEFIELD	Manchester Education Committee	School of Technology, Sackville-street, Manchester	do.
Generating Plant, Whitchurch Asy. Electric Lighting	Cardiff Corporation	A. Ellis, Central Offices, The Hayes, Cardiff	Nov. 27
Stores	Dublin United Tramways Co.	R. S. Trevilian, Secretary, 9, Upper Sackville-street, Dublin	do.
Dwelling-house at St. Athan	Mr. D. Hopkins	P. L. Thomas, Architect and Surveyor, Bridgend	do.
Caretaker's House at Sewage Works	Altofts U.D.C.	A. E. Greaves, 26, Wood-street, Wakefield	do.
Pier Widening, etc., Millport	Millport Town Council	J. Cowan, C.E., 179, West George-street, Glasgow	do.
Wrightwork Fittings, Parkhead District Library	Glasgow Corporation	J. R. Rhind, Architect, 67, Hope-street, Glasgow	do.
Water-mains (three miles of 4-in. and 3-in.)	Billericay R.D.C.	Merryweather & Son, Ltd., Engineers, Greenwich-road, S.E.	do.
Sewer (9-in. Stone Pipe), Fortis Grn.-rd., Muswell Hill	Hornsey Town Council	E. J. Lovegrove, Municipal Offices, 99, Southwood-lane, Highgate	do.
Regenerators	Saffron Walden Gas Committee	A. H. Forbes, Gasworks Manager, Saffron Walden	do.
Roof Strengthening (Filter Ho. Llanvaches reservoir)	Newport Corporation	Borough Engineer's Office, Town Hall, Newport, Mon.	do.
Sewers, etc. (5,200 lin. yds.) Bishopbriggs & Auchinairn	Lanark District Committee	Warren & Stuart, Engineers, 94, Hope-street, Glasgow	do.
Sewers (6,130 lin. yds.), Ruthergien	do.	do.	do.
Sewer Additions, etc.	Town Council of Elie, Liberty, etc.	J. & T. W. Currie, Architects, Elie, N.B.	do.
Rolling Stock	South Indian Railway Co.	H. W. Notman, 55, Gracechurch-street, London, E.C.	Nov. 28
Wheels and Axles	do.	do.	do.
Springs (laminated bearing)	do.	do.	do.
Roofing (150 tons)	do.	do.	do.
Library, Carnegie Branch, Falls-road, Belfast	Library and Technical Instruc. Com.	S. C. Hunter, Scottish Provident-buildings, Belfast	do.
*CAR SHED IN LEVEN-ROAD, POPLAR	London C.C.	Highways Section, Architect's Department, 13, Charing-cross, S.W.	do.
*MAK.-UP PAGE HTR. VLS., MOSSLEA, Etc. RDS.,	Borough of Bromley	Town Clerk, Bromley, Kent	do.
Colour., Paint., etc., Royal Bath Hospital, Harrogate	Committee of Management	B. Shaw, Secretary	Nov. 29
Alterations, etc., St. John's Home, Ipswich	Ipswich Guardians	H. J. Wright, Architect, 4, Museum-street, Ipswich	Nov. 30
Sewers, Surf. Water, etc., for New Roads, Leytonstone	Harrington's Trustees	G. Midgley Taylor, Engineer, 27, Gt. George-street, Westminster	do.
Annual Contracts	Chatham Town Council	C. Day, Borough Surveyor, Town Hall, Chatham	do.
Wall (Re-erection of Retaining), at Henfaes Bridge	Carmarthenshire County Council	C. H. Mounsey, County Surveyor, Carmarthen	do.
Asylum and School Adds., Craigmillar-pk., Edinburgh	Royal Blind Asylum and School	Henry & Maclennan, Architects, 7, South Charlotte-st., Edinburgh	do.
Pumping Machinery, Ingatestone Waterworks	Chelmsford R.D.C.	J. Dewhirst, Engineer, Avenue-chambers, Chelmsford	Dec. 1
Borehole Pump (taking out, altering, etc.)	do.	do.	do.
Hall (Catholic Temperance), Limavady, Ireland	Derbyshire Education Committee	D. Conroy, Architect, 21, Shipquay-street, Londonderry	do.
School Alterations, Renishaw Council	Malling R.D.C.	F. H. Fisher, Architect, The Mount, Killamarch, near Sheffield	Dec. 2
Scavenging, Wouldham	do.	C. Santer, Inspector of Nuisances, West Malling	do.
Scavenging, East Malling and Dilton	do.	do.	do.
Scavenging, West Malling	Sleaford U.D.C.	Jesse Clare, Surveyor, Sleaford	do.
Waterwheel and Pumps	Gt. Northern Railway Co., Ireland	T. Morrison, Secretary, Amiens-street Terminus, Dublin	Dec. 4
Motor-cars (six-steam rail)	South Hetton Coal Co., Ltd.	J. S. Speakman, Kingsley	do.
Lych-gate, Parish Church, Kingsley	Widnes Corporation	J. R. Lambert, South Hetton, Sunderland	do.
Colliery Stores	Commissioners of H.M. Works, etc.	Isaac Carr, M.Inst.C.E., Widnes	Dec. 5
Engine (triple expansion)	Westminster City Council	H.M. Office of Works, etc., Storey's-gate, S.W.	do.
*MILITARY SCHOOL, GUSTON, NEAR DOVER	H.M. Office of Works	Works Department, City Hall, Charing Cross-road, W.C.	do.
*RETILING, Etc., SWIMMING BATH	Llandovery Town Council	H.M. Office of Works, Storey's-gate, Westminster, S.W.	Dec. 6
*NEW POST OFFICE AT HULL	Newton Abbot R.D.C.	A. S. Williams, Architect, Llandilo	do.
Market Alterations and Renovations	Dunmow Advisory Sub-Committee	Beesley, Son, & Nichols, Engs., 11, Victoria-st., Westminster, S.W.	do.
Sewerage Disposal, Bovey Tracey	do.	F. Whitmore, County Architect, Duke-street, Chelmsford	Dec. 8
School for fifty-six children, Bardfield Saling, Essex	Carmarthenshire Education Com.	S. Giffard, Nursery-lane, High-street, Dunmow	do.
School Alterations, Great Bardfield	do.	W. D. Jenkins, County Education Architect, Shire Hall, Carmarthen	do.
Drain. (surf. water) and metal., Brynamman Playgrd.	do.	do.	do.
Conveniences, Wall, etc., Pinged Council School	do.	do.	do.
Paving, Channelling, etc., Cwmbach Council School	do.	do.	do.
School Repairs, Llechyfedach Council School	do.	do.	do.
School Alterations, etc., Llanwrda Council School	do.	do.	do.
School Repairs, Pontyeates (Llanelly) Council School	do.	do.	do.
Ventilation and Repairs, Alltwalis Council School	do.	do.	do.
Stores	East Helton, Trimdon, etc., Collieries	Storekeeper, Trimdon Grange Colliery Co., Durham	Dec. 9
School Additions, etc., Frampton, Cotterell	Gloucestershire Education Comm.	R. S. Phillips, Surveyor, Shire Hall, Gloucester	do.
School Alterations, etc., Heston	Heston & Isleworth Education Com.	A. L. Long, Architect, Council House, Hounslow	do.
Cottages (two) and Stable, Trinity-street	Salisbury Municipal Charities	J. Harding & Son, Architects, 58, High-street, Salisbury	Dec. 11
Repairs to Three Houses and the Star Inn, Brown-st.	do.	do.	do.
Painting Market Hall	Birkenhead Corporation	C. Brownridge, Borough Engr. and Surv. Town Hall, Birkenhead	do.
*MAGISTRATES' COURTS, ACTON	Middlesex C.C.	County Architect, Middlesex Guildhall, Westminster, S.W.	do.
*ADDITIONS, Etc., TOWN HALL, BRENTFORD	do.	do.	do.
*CON. COV. WAY, Etc., AT BARMING HTH. ASY.	Kent County Asylums Committee	W. J. Jennings, Architect, 4, St. Margaret's-street, Canterbury	do.
Lake and Two Bridges, Pymmes Pk., Upper Edmonton	Edmonton U.D.C.	G. Eedes Eachus, Engineer, Town Hall, Edmonton	Dec. 12

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be delivered
Reinforced Concrete, part, Queen-st. Wharf & Jetty	Auckland Harbour Board	W. & A. McArthur, Ltd., 150, Leadenhall-street, E.C.	Jan. 9
Sheerlegs and Jetty, Reinf. Conc., Calliope Dockyard	do.	do.	do.
Resid., Conserva., Stabling, Cecil Av. Estate, Baildon	.....	J. Harper Bakes, Architect, Calverley-chamb., Victoria-sq., Leeds	No date.
Two Cottages at Marshfield	.....	J. Coates Carter, Architect, Bank-buildings, Cardiff	do.
Brick Lime Kilns at Hunmanby	W. Page & Son	Garlick & Flint, Architects and Surveyors, Brixton	do.
Pair of Residences, Barnfield-road, Exeter	Mr. R. C. Upright	J. A. Lucas, Architect, Guildhall-chambers, Exeter	do.
*NEW COUNCIL SCHOOL, DARLASTON	Staffs. C.C. Education Committee	Graham Balfour, Stafford	do.
*MATERIALS AND WORKS FOR WATER SUPPLY	Congleton R.D.C.	W. Wyatt, Engineer, 99, Radford-road, Leamington	do.
*NEW TECHNICAL INSTITUTE	Rochester Corporation	Town Clerk, Guildhall, Rochester	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*INSTRUCTORS, MANUAL TRAIN. IN WOODWK.	London C.C.	100*l.*	Nov. 27
*THIRD ASSISTANT DRAUGHTSMAN	Metropolitan Borough of Stepney	140*l.* per annum	do.
*BUILDING INSPECTOR AND CLERK OF WORKS	Acton District Council	150*l.* per annum	Dec. 1
*ARCHITECTURAL ASSISTANT	Glamorgan C.C.	2*l.* 10*s.* per week	No date.

Those marked with an asterisk (*) are advertised in this number. *Competitions*, —. *Contracts*, iv. vi. viii. x. *Public Appointments*, xvii.

TENDERS.—*Continued from page 543.*

LONDON.—For the supply and laying of high and low tension cables, etc., for the London County Council:—

I.—Tenders for High-tension Cables.

Société d'Exploitation des Cables Electriques‡	£24,664	10	6
St. Helens Cable Co., Ltd.	21,950	10	0
National Conduit and Cable Co., Ltd.	21,804	10	0
W. T. Glover & Co., Ltd.	21,572	9	7
Callender's Cable and Construction Co., Ltd.	21,396	5	0
British Insulated and Helsby Cables, Ltd.	21,001	16	3
W. T. Henley's Telegraph Works Co., Ltd.	20,719	6	6
Siemens Bros. & Co., Ltd.	20,670	16	6
Western Electric Co., London*	20,549	16	0

‡ Incomplete tender.

II. Tenders for low-tension Cables, feeder-pillars, etc.

Société d'Exploitation des Cables Electriques‡	£45,169	5	0
National Conduit and Cable Co., Ltd.‡	40,197	0	0
St. Helens Cable Co., Ltd.	40,756	10	5
Callender's Cable and Construction Co., Ltd.	39,723	15	0
Western Electric Co.	38,628	7	7
Siemens Bros. & Co., Ltd.	38,541	0	9
W. T. Henley's Telegraph Works Co., Ltd.	38,154	13	9
British Insulated and Helsby Cables, Ltd.	38,060	15	10
W. T. Glover & Co., Ltd., Manchester*	37,869	0	0

‡ Incomplete tenders.

LONDON.—For cupboards in the bedrooms of Barnaby-buildings, Leroy-street, Bermondsey, for the London County Council:—

General Builders, Ltd.	£199
H. L. Holloway	173
Holloway Bros. (London), Ltd.	167
F. & T. Thorne	147
W. Smith & Son, Eldon Works, Harleyford-road, Kennington, S.E.*	123

LONDON.—For providing and fixing glazed casement windows to all openings in the disconnecting lobbies in the dwellings on the Preston's-road estate, Poplar, for the London County Council:—

Holloway Bros. (London), Ltd.	£490
General Builders Ltd.	477
H. L. Holloway	390
F. & T. Thorne	384
W. Smith & Son, Eldon Works, Harleyford-road, Kennington, S.E.*	300

LONDON.—For the supply and erection of hydraulic penstocks and gear at the Falcon-brook pumping-station, for the London County Council:—

A. Goodwin & Son, Ltd.	£1,029
Yates & Thom, Ltd.	1,012
Ashton, Frost, & Co., Ltd.	953
Glenfield & Kennedy, Ltd.	847
J. Cochrane	825
Hunter & English	780
J. Blakeborough & Sons, Brighouse*	633

LONDON.—For engineers' tools and workshop appliances and a two-phase electric motor at Western Fever Hospital, Fulham, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-chief:

Low Moor Co., Ltd.	£406	3	7
Tangye Tool and Electric Co., Ltd.	357	2	9
J. Spencer & Co.	328	16	9
Dempster, Moore, & Co., Ltd.	249	11	6
Easterbrook, Allcard, & Co., Ltd.	247	9	6
Britannia Engineering Co., Ltd.	245	4	6
Hobdell, Way, & Co., Ltd.	240	15	2
W. T. Skelding & Co., Ltd.	234	11	11
Buck & Hickman, Ltd.	234	8	0
A. Schove	232	18	0
British Electrical & Mechanical Co.	228	16	0
W. Newbold & Co., Ltd.	227	17	6
J. Gibb & Co., Ltd.	218	18	0
G. Hatch, Ltd.	206	4	3
Selig, Sonnenthal, & Co.	192	19	0
H. Greene & Co., 22, Martin's-lane, E.C.*	189	9	4

LONDON.—For wiring and fittings for electric light installation, Lee-green Station, for the London County Council:—

Barlow & Young	£240	0	
W. H. Johnson	183	15	
J. O. Grant & Taylor	175	0	
O. Clark & Co.	170	0	
F. J. Coleby & Co.	164	10	
R. Dawson, Ltd.	160	0	
Durell & Co.	160	0	
National Electric Contruction Co., Ltd.	£157	0	
J. Defries & Sons, Ltd.	155	0	
Hooper, Neary, & Co., Trafalgar-rd., Greenwich, S.E.*	141	10	

LONDON.—For alterations to No. 1, Worship-street, E.C., for "The Neophone Co." Mr. S. C. Hart, architect, 22, Philpot-lane, London, E.C.:—

W. Roberts	£598	0	
Cordell & Sons	549	0	
W. Mathews†	£428	10	
Gavin Bros.‡	381	10	

‡ Exclusive of hot water.

MARCH (Isle of Ely).—For erecting a block of elementary schools to accommodate 600 boys and girls, for the Isle of Ely Education Committee. Mr. R. S. W. Perkins, County Surveyor, Connor-road, Ely. Quantities by Mr. F. T. Mullett, Cambridge:—

A. Christmas	£9,500	0	
C. Redhead	7,395	0	
H. Papworth	7,350	0	
Kerridge & Shaw	7,295	0	
H. J. Linzell	7,197	0	
A. Bateman	7,187	0	
A. Negus & Son	7,090	0	
O. P. Dreever	7,017	17	
Grimwood & Sons	6,883	0	
J. G. Cowell	6,800	0	
C. Roper	6,800	0	
W. E. Champion	6,704	0	
H. Feast	6,649	10	
Oak Building Co.	£6,500	0	
Thackeray & Co.	6,500	0	
W. Howard	6,499	0	
Page & Son	6,499	0	
Coulson & Lofts	6,419	0	
Parren & Son	6,350	0	
Rands & Son	6,300	0	
R. Shanks	6,190	0	
Clarke & Son	6,125	0	
Kettering Co-operative Builders	5,905	0	
G. W. Heath, March†	5,671	0	

LONDON.—For construction of underground convenience, Waterloo-road, for the Lambeth Borough Council. Mr. H. C. J. Edwards, Borough Engineer, 346, Kennington-road S.E.:—

—	Builders' Work only.	Sanitary, Engineering, and Plumbing.	Founders' Work.	The entire work.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
W. H. Hyde	2,322 0 0	—	—	—
T. Almond & Son, Ltd.	2,332 0 0	—	—	—
J. Shelbourne & Co.	2,360 0 0	—	—	—
G. Jennings, Ltd., Lambeth, S.E.	2,386 10 6	258 6 0	148 0 0	*2,792 16 6
Chambers Bros.	2,395 0 0	—	—	—
Martin, Wells, & Co., Ltd.	2,399 0 0	—	—	—
Spencer, Santo, & Co., Ltd.	2,400 0 0	—	—	—
W. Moss & Sons, Ltd.	2,469 10 4	131 8 2	104 1 6	2,705 0 0
B. E. Nightingale	2,473 0 0	—	—	—
Doulton & Co., Ltd.	2,574 0 0	242 0 0	180 0 0	2,996 0 0
H. Kent	2,577 0 0	—	—	—
W. J. Renshaw‡	2,618 0 0	245 0 0	—	—
Safety Tread Syndicate, Ltd.	2,721 0 0	—	—	—
Davis & Bennett§	2,855 0 0	289 0 0	135 0 0	3,259 0 0
H. C. Payne	2,888 0 0	—	—	—
F. W. Harris & Co., Ltd.	2,970 0 0	—	—	—
B. Finch & Co., Ltd.	—	242 10 0	—	—
G. & D. Musgrave, Ltd.	—	271 0 0	—	—
Adamsez, Ltd.	—	315 4 0	—	—

‡ If galvanised gratings are required over base channels, add £13; if Finch's No. 356 urinals are used, add £35.
§ Price includes wrought-iron railings.

PENTNEY.—For erecting a new school for the Norfolk Education Committee. Mr. E. J. Tench, architect, 14, Upper King-street, Norwich:—

—	Schools.	Addition for Screen.	Total.
	£ s. d.	£ s. d.	£ s. d.
A. W. Barnes & Co.	980 0 0	30 0 0	1,010 0 0
G. Jeffries, Swaffham*	1,037 0 0	28 0 0	1,065 0 0
A. S. Lincoln	1,039 0 0	27 1 10	1,066 1 10
A. C. Taylor	1,043 0 0	30 0 0	1,073 0 0
Gunton & Palmer	1,060 0 0	28 0 0	1,088 0 0
S. Hipwell & Co.	1,090 0 0	30 0 0	1,120 0 0
J. Medwell	1,098 10 0	32 5 0	1,130 0 0
Clark & Sons	1,119 10 0	28 16 7½	1,148 6 7½
Podd & Fisher	1,120 0 0	31 10 0	1,151 10 0
A. D. Boddy & Sons	1,160 0 0	31 18 0	1,191 16 0
Tash, Langley, & Co.	1,165 7 6	30 6 0	1,195 13 0
R. Shanks	1,188 0 0	32 10 0	1,220 10 0
Oak Building Co.	1,199 0 0	29 0 0	1,228 0 0
R. Dye	1,198 0 0	31 10 0	1,229 10 0
J. Needs	1,195 0 0	42 13 0	1,237 13 0
Coulson & Lofts	1,214 0 0	27 0 0	1,241 0 0
H. Blyth	1,215 0 0	31 0 0	1,246 0 0
Read & Wildbur	1,200 0 0	4 2 6	1,264 2 6

[Architect's estimate, £1,070.]

MILTON ERNEST.—For residence, Milton Ernest, Beds, for Mr. H. Curtis. Mr. H. Young, architect, Bedford:—

W. T. Sharpe & Son	£5,449	C. E. Haynes	£4,995
W. Packwood	5,361	R. Marriott	4,885
A. J. Dawes	5,318	E. Brown & Son	4,800
S. Foster	5,297	Warton & Dunstall*	4,715
C. E. Bayes	5,277	R. Jeakings	4,517
J. P. White	5,195		

ROTHESAY.—For the Rothesay water undertaking, for the Town Council:—

Supply of Pipes.

Macfarlane, Strang, & Co., Glasgow .. £3,270 16 11

Supply of Valves, Hydrants, etc.

R. Laidlaw & Sons, Ltd., Glasgow .. 170 13 6

Pipe Laying.

W. Scott, Hamilton 705 7 8

SELBY.—For constructing an engine and boiler house, foundations for engine and pumping machinery, chimney shaft, etc., at waterworks, for the Urban District Council. Mr. P. Griffith, 54, Parliament-street, Westminster, and Mr. B. McGregor Gray, Council Offices, Selby, engineers:—

H. Arnold & Son, Doncaster £2,925

SOUTHALL.—For surface water drain, South-road, for the Southall-Norwood Urban District Council. Mr. R. Brown, Engineer and Surveyor, Public Offices, Southall:—

S. Gibbons	£237	R. W. Swaker	£166
J. Shelbourne & Co.	190	J. Etheridge	161
J. Macklin	186	A. & B. Hanson	156
Thomas & Thomas	186	T. Watson, jun., Southall*	154
Free & Sons	181	F. Benton	153
Langley & Johnson	176		

[Engineer's estimate, £164.]

SOUTHALL.—For making-up Pluckington-place, for the Southall-Norwood Urban District Council. Mr. R. Brown, Engineer and Surveyor, Public Offices, Southall:—

Thomas & Thomas	£501	H. Morecroft	£398
J. Macklin	481	S. Gibbons	397
Mowlem & Co.	429	R. W. Swaker	378
T. Free & Sons	416	F. Benton	373
Langley & Johnson	408	T. Watson, jun.	368
J. Shelbourne & Co.	403	A. & B. Hanson, Southall*	360
J. Etheridge	402		

[Engineer's estimate, £449.]

SOUTH ELMSALL.—For erecting branch stores, for Pontefract Industrial Society, Ltd. Messrs. Garside & Pennington, architects and surveyors, Pontefract. Quantities by architects:—

Brickwork: W. Walker, Castleford*	£300	0 0
Joiners: M. Dixon, Ackworth*	256	5 0
Plumber: G. Thomson, Leeds*	70	0 0
Plasterer: T. W. Senior, Pontefract*	11	10 0
Painter: S. Harrison, Pontefract*	15	12 6
Slaters: Stewart Bros., Pontefract*	38	12 6

SPILSBY.—For erecting a post-office. Mr. J. E. Butcher, architect and surveyor, Boston-road, Spilsby:—

J. H. Hunter	£1,316 12 0	J. Kime	£943 0 0
F. Rattenbury	1,130 0 0	C. T. Lettice	913 0 0
J. T. Turner & Sons	1,050 0 0	J. G. Holmes & Sons	900 0 0
A. Wood	906 7 6	W. Walker, Spilsby*	879 10 0

STOWMARKET.—For erecting a depôt in Milton-road, for the Urban District Council. Mr. H. G. Bishop, architect, Bury-street, Stowmarket. Quantities by Mr. G. W. Lingwood, Surveyor to the Council:—

G. Burgoyne	£1,047 7 0	C. Roper	£845 0 0
Murray & Sherwin	870 0 0	E. & L. Plummer	799 10 0
J. T. Gosling	869 4 9	H. J. Linzell	799 0 0
Scales & Robins	867 10 0	W. H. Death	754 0 0
		E. Death, Stowmarket*	747 0 0

SWINDON.—For erecting eighteen houses at Bruce-street, Rodborne-road, for Mr. S. Bruce Morrison. Messrs. Drew & Sons, architects, Regent-circus, Swindon. Quantities by the architects:—

Tydeman Bros., Swindon* £3,330

[Five Tenders received.]

TUNBRIDGE WELLS.—For roadworks, Manor-road, etc., for the Corporation. Mr. W. H. Maxwell, Engineer and Surveyor, Town Hall, Tunbridge Wells:—

W. Wilson, Ramsgate* £2,321 6 1

TIPTON.—For heating, etc., Burnt Tree, Dudley Port, Great Bridge, and Tipton Green Council schools, for the Urban District Council. Mr. A. Long, architect, 21, New-street, West Bromwich:—

FOR BUILDERS' WORK.

Great Bridge School.

S. W. Moore, Ocker Hill* £154 0 0

Dudley Port School.

S. W. Moore, Ocker Hill* 140 0 0

Burnt Tree School.

T. Chapman, West Bromwich* 120 10 0

Tipton Green School.

S. W. Moore, Ocker Hill* 160 0 0

FOR ENGINEERS' WORK.

Burnt Tree School.

Lucas & Co., Cradley Heath* 228 0 0

Great Bridge School.

Lucas & Co., Cradley Heath* 249 0 0

Tipton Green School.

Lucas & Co., Cradley Heath* 249 0 0

Dudley Port School.

A. J. Kallaway, Birmingham* 251 0 0

WALLASEY.—For the erection and completion of the proposed new school at St. George's-road, Wallasey, for the Education Committee:—

		Alternative Tenders as per Bill of Quantities.
R. Allen	£17,296	£17,000
J. Bellis	14,900	14,400
Brown & Backhouse	14,433	14,212
W. Brown & Sons	14,300	14,290
S. Butterworth & Sons	15,771	15,293
T. F. Cooke	14,828	14,475
R. Constain & Sons	16,997	16,617
T. Cuthbert	16,970	16,441
C. W. Davenport	14,449	14,232
Dryland & Preston	14,597	14,025
Duthie & Dobson	15,247	14,677
J. Ellison	15,800	16,050
W. H. Forde	14,337	13,830
J. Gerrard & Sons, Ltd. Manchester*	14,356	13,196
J. Gourley	15,035	14,216
H. E. B. Greene & Co.	14,735	14,216
W. Hall & Son, Ltd.	14,485	13,995
Holme & Greene	14,898	14,323
Hughes & Stirling	15,500	14,877
F. W. Mayor & Co., Ltd.	14,792	14,447
J. Merritt	14,860	14,288
J. Mills & Son	14,200	13,654
J. Patterson & Co.	15,177	14,577
J. Rothwell & Sons	13,995	13,980
P. Rothwell	14,985	14,493
T. Spencer	14,878	14,500
P. Tyson	15,490	15,250
H. Vickers & Son	15,000	14,440
J. H. Vickers	14,232	13,707
S. Webster	16,646	16,000
J. Williams	15,290	14,690

J. J. ETRIDGE, Jr.

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